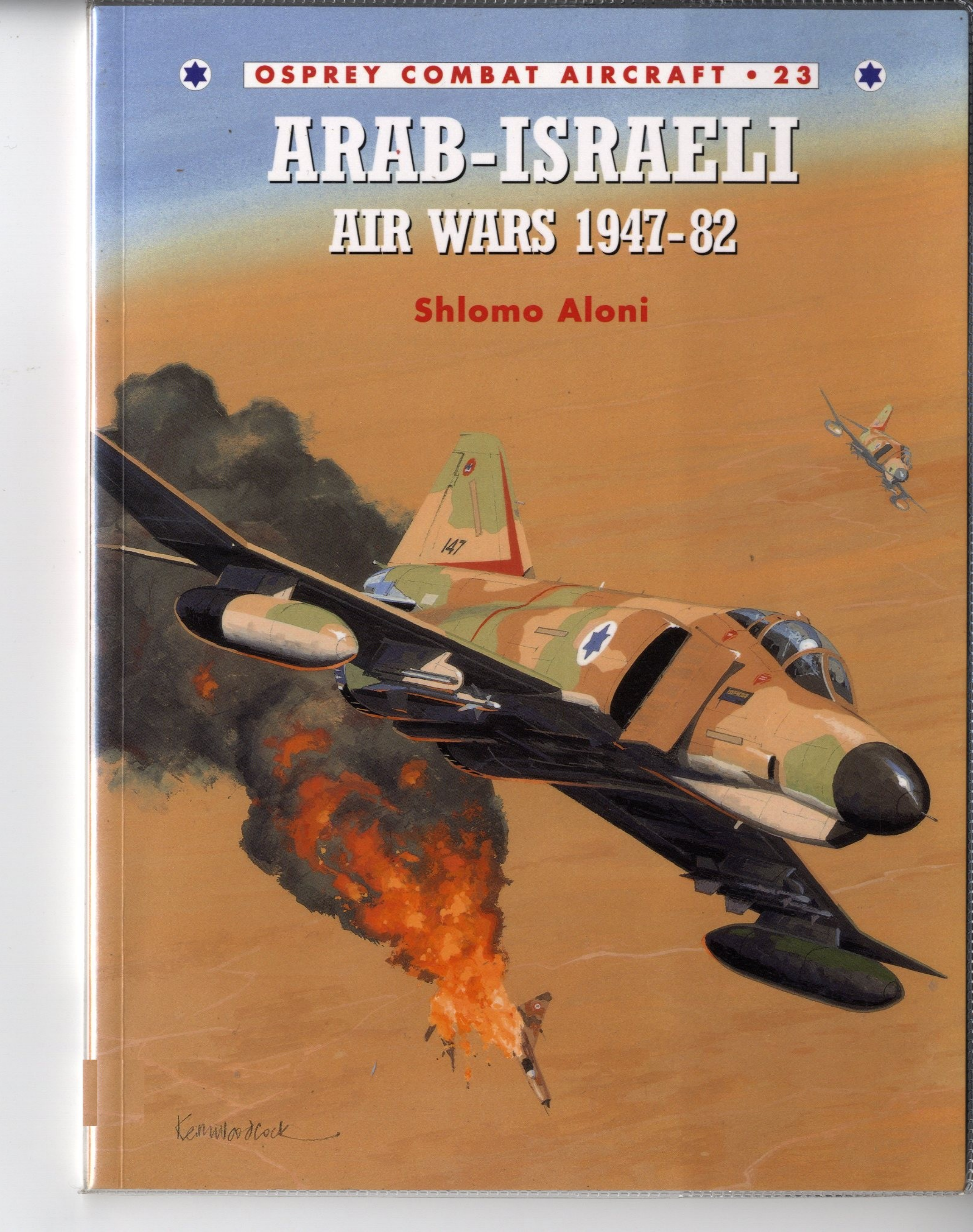
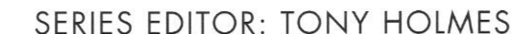

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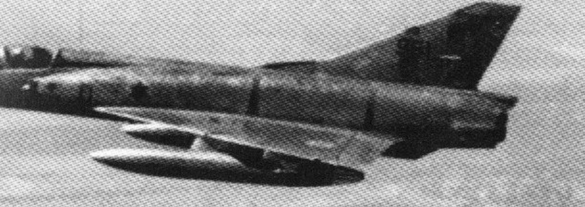
ARAB-ISRAELI

AIR WARS 1947-82



OSPREY COMBAT AIRCRAFT • 23

ARAB-ISRAELI AIR WARS 1947-82



Shlomo Aloni



Front cover
Lt Chaim Rotem in Super Mystère s/n 73 was No. 2 in a formation that attacked Kabrit air base on 5 June 1967. When Rotem pulled out of a strafing pass he saw a MiG-17 that had just taken off. It was still with its undercarriage down and with afterburner, and he shot it down with a cannon burst

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1947-49: PARTITION AND AFTER

Few nations, if any, have survived an invasion by surrounding established nations with vastly superior armed forces on their very first day of existence. Israel is indeed an exception. The 29 November 1947 United Nations Resolution 181 called for the end of the British mandate and the partition of Palestine into two independent states, a Jewish State beside an Arab State. The Jewish population, 650,000 people, accepted the partition as the least worst solution, while the Arab population, 1,200,000 people, rejected the plan completely. The nature of the partition, however, was all but unacceptable to both sides. The Jewish nation was meant to possess some 55% of Palestine with about 500,000 Jews and 400,000 Arabs, but it was to be divided into three areas almost separated from each other. The remaining Jewish population was living within an Arab state that was also divided into three virtually separate areas. The capital, Jerusalem, was to be under international control (see Map 1 in colour section).



In 1939 the 'state owned' Jewish commercial aviation enterprise, the Aviron company, produced its first group of private pilot licence holders. Polish R.W.D.8 and R.W.D.13 aircraft were used. R.W.D.13 SP-BFM became VQ-PAM eventually being struck off command by the Israeli Air Force in 1949 *(GPO)*

Hostilities commenced throughout the country almost immediately as there were no frontiers whatsoever. Quite a number of cities were heterogeneous with both Arab and Jewish populations, as were the smaller communities – a Jewish settlement beside an Arab village. The more affluent Jewish population relied heavily on motor transport and water pipes and these were the first targets for Arab attacks. In the middle were the British with each side blaming them for supporting the other while they merely tried to conduct an honourable withdrawal.



A typical SA (Jewish 'underground' air force) scene. An ex-Canadian Air Force Tiger Moth, VQ-PAU, parked at Sde Dov, a small civil airport on the outskirts of Tel Aviv *(GPO)*



A surprise was the purchase of some 20 Auster A.O.P. (air observation post) observation aircraft surplus to RAF requirements in early 1948. The Austers were rebuilt at Sharona, an ex-German settlement on the outskirts of Tel Aviv, and started to enter SA service in February 1948. The British objection to granting civil certificates of airworthiness to these aircraft was easily evaded by duplicating the civil registrations of the legal SA light planes while numbers were also applied to distinguish between the aircraft, for example VQ-PAS 1 etc *(Katz collection)*

THE UNDERGROUND AIR FORCE

Under such unfavourable circumstances aviation began to contribute to the Jewish war effort. In the six months between the UN resolution of November 1947 and the Israeli declaration of independence in May 1948 two air forces dominated the skies of the Holy Land: the Royal Air Force (RAF) covering the withdrawal of British forces and the Jewish 'underground' air force *Sherut Avir* (the Air Service, known as the SA) supporting the Jewish forces.

When it became clear that war lay ahead, all Jewish aviation assets had been put under the control of the newly created SA in November 1947. The next month flying operations began from Sde Dov, a small civil airport on the northern outskirts of Tel Aviv. Civil light planes were initially used for intelligence (photographing targets and flying commanders for observation of targets), transport of supplies to besieged outposts, casualty evacuation, observation and the escort of convoys. The first ground support mission was flown on 17 December 1947 when Pinchas Ben-Porat in an R.W.D.13 was ordered to fly a doctor to Bet-Eshel in the Negev Desert, then fly to nearby Nvatim from where he was to evacuate two wounded to the north. However when Ben-Porat arrived at Bet-Eshel he learnt from the locals that Nvatim was under attack by some 200 Arabs. On his own initiative Ben-Porat asked for a machine gun and hand grenades. He removed the doors of the R.W.D.13, tied the Bren gun to the seat and took off with a volunteer gunner. A few minutes later the aircraft attacked the Arabs around Nvatim causing them to abort their action and retreat.

Despite a British warning against any further such actions, the pattern had been set and the light planes of the Tel Aviv Squadron became an integral part of the Jewish armed forces. The use of machine guns from such aircraft was extremely hazardous, and more than once the crews returned to Sde Dov with a damaged wing strut or propeller either from their own fire or from enemy action. The hand grenades were soon replaced by specially developed 'air bombs' varying in weight from 20-kg to 50-kg. The bombing method was simple: when the pilot was over the target area he ordered the 'bombardier' to throw the bomb. The 'bombardier' then pulled out the safety pin and threw the bomb out of the window or door. There was no bomb sight so accuracy was wholly dependent on the instincts of the pilot, while the primitive detonators were designed to explode the bomb on the

ground when dropped from a certain altitude. If the pilot flew a bit too high or too low or if the mechanism was not accurate enough the bomb either exploded in the air or did not explode at all.

The war grew more and more intense as the British military withdrawal gathered momentum and Jewish forces struggled to secure additional territory and land assets in anticipation of the expected Arab invasion. The intensified operations resulted in an increased demand for aerial support, and in early March 1948 the Galilee Squadron was formed at Yavniel to support operations in the north, while in early April the Negev Squadron was formed at Nir-Am to support operations in the south. A rare RAF intervention in the fighting occurred in late April when four No 208 Sqn Spitfire FR.Mk 18s strafed Jewish strongpoints during the Jewish attack on Jaffa.

After almost six months of intensive operations the SA suffered its first combat loss on 10 May when a newly arrived Norseman was lost on a bombing mission with all six on board, a possible victim of a new 200-kg bomb that, it was supposed, shifted the centre of gravity of the aircraft when it was rolled across the floor to be dropped through the door. By this time the SA was quite well organised with three flying units, an air staff, maintenance facilities and logistic support, but it was no match for the air arms of Egypt, Syria, Iraq, Jordan and Lebanon, the nations that were to invade Palestine once the British mandate ended on 14 May 1948.



The original Auster VQ-PAS photographed during a typical SA mission: the resupply of a remote settlement *(IAFM collection)*



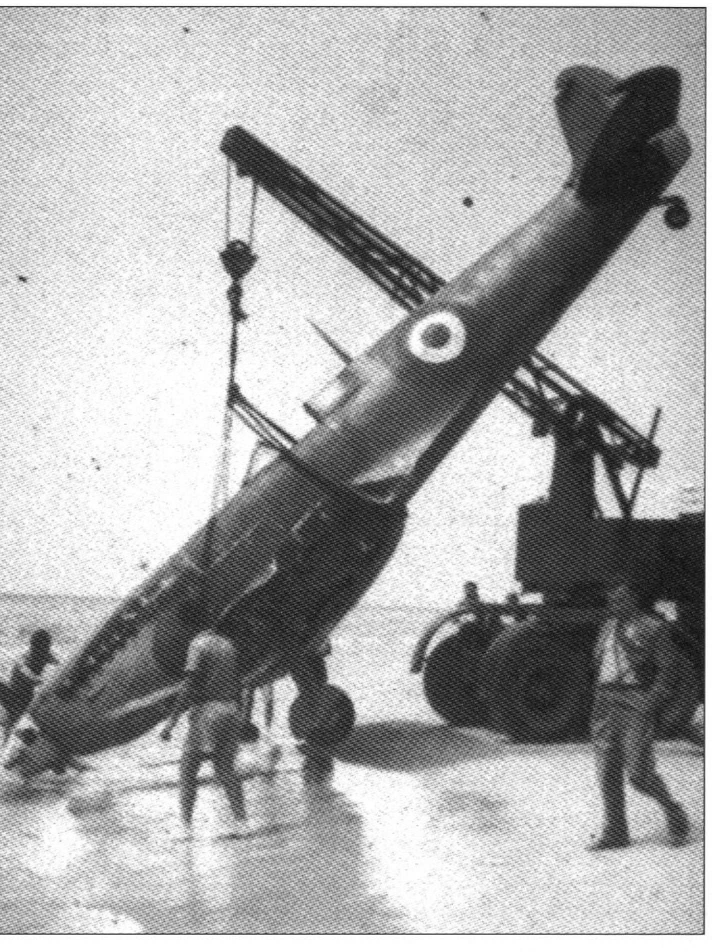
This is a 'duplicate', an ex-RAF Auster A.O.P.3 painted as the legal Auster VQ-PAS at Nir-Am, the base of the Negev Squadron *(IAFM collection)*

ARAB OFFENSIVES

On 15 May 1948, the day after the state of Israel was declared, Egyptian Spitfires attacked Tel Aviv. Several light planes were either destroyed or damaged at Sde Dov while a single Egyptian Spitfire was shot down by anti-aircraft fire. On the ground four regular Arab armies attacked Israel: the Egyptians in the south, the Jordanians and Iraqis in the centre and the Syrians in the northeast. A fifth regular army, the Lebanese, stood by on the border while local Palestinian irregulars and many volunteers from the surrounding Arab nations continued the fighting inside the territory that was once a British mandate.

The four regular Arab armies were in fact expeditionary forces with little in common and without any central command. Each Arab army fought on its own front for its own local goals. Except for the active Jordanian army and the passive Lebanese army each of the other Arab regular armies had an aerial component to support ground operations. Egypt operated Spitfires from the forward operating base at El-Arish for both air-to-air and air-to-ground missions, while a small number of Douglas C-47 transports were modified as bombers. In the north, Syria operated a squadron of North American T-6 armed trainers from Damascus to support its army, while a small number of Iraqi Avro Anson light bombers were forward deployed to Jordan to support the Iraqi army. Although this force was not a large one it was totally superior to the Israeli fleet of light planes, and in the initial phase of the war the Israeli Air Force that had succeeded the SA operated mostly under cover of darkness. Only true emergency flights were authorised by the Israelis during daylight while the Arab Ansons, C-47s, Spitfires and T-6s flew freely over Israel.

Arab air raids were effective. The most devastating attack was on 18 May when Egyptian C-47s bombed the Tel Aviv central bus station; 42 people were killed and another 100 were injured. The Israeli Air Force retaliated at night but the poorer accuracy of night bombing coupled with the lighter bomb load of the Israeli 'bombers' resulted in a marked edge in favour of the Arab air arms during the first two or three weeks of the war.



The Israeli Air Force claims that this is the Royal Egyptian Air Force Spitfire shot down by anti-aircraft fire over Sde Dov on 15 May 1948 *(Katz collection)*

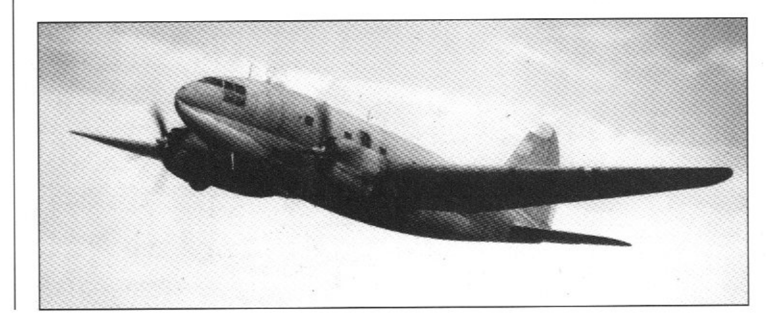


Syrian Air Force Harvards were used effectively in the air-to-ground role. They had a rear-gunner for self-protection *(Nicolle collection)*

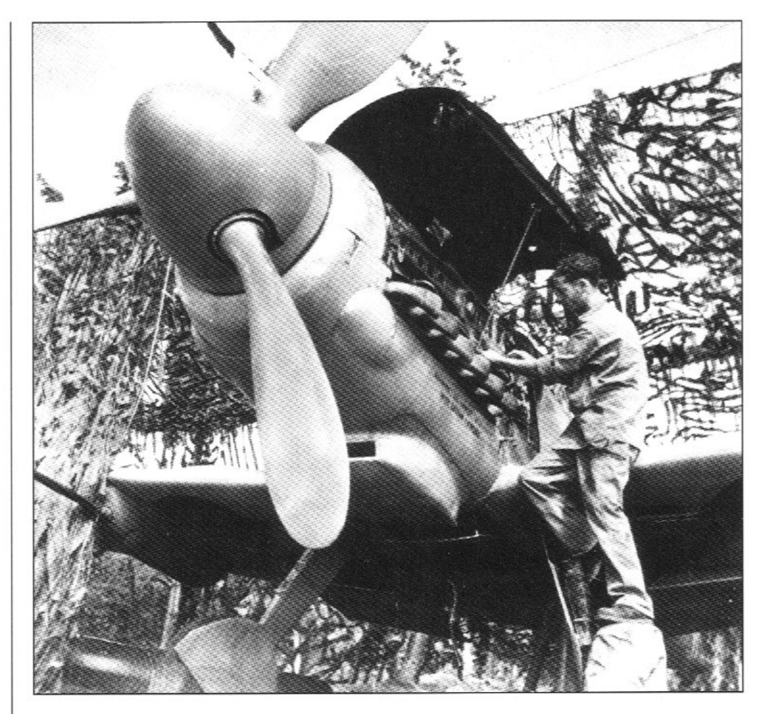
The only setback for the Arab air arms during that period was not the result of Israeli action. Despite the official end of the British mandate a small British garrison was still in existence at Ramat David, near Haifa. On 22 May a section of Royal Egyptian Air Force Spitfires appeared overhead to attack the air base. Two RAF Spitfires were destroyed and another eight were damaged in that first wave. Later a second section of Egyptian Spitfires attacked again. An RAF Dakota transport was destroyed on the ground, four airmen were killed and five wounded. This time the Egyptian Spitfires were intercepted by the RAF's No 208 Sqn Spitfires, flown by Flg Off Cooper and Flg Off Bowie, who shot down two, while a third was shot down by British anti-aircraft fire. A third Egyptian wave was also intercepted by No 208 Sqn Spitfires, and Flg Off McElhaw shot down two Egyptian Spitfires.

By the time the Egyptians had suffered this blow at the hands of the RAF, the Israeli Air Force was building its own fighter force which would soon change the balance in the air. Israel purchased 25 Avia S-199 fighters from Czechoslovakia and these were airlifted to Israel by Curtiss C-46 and Douglas C-54 transports that landed at Tel Nof (an ex-RAF air station). The first S-199 arrived in Israel on 20 May. By 29 May four of the S-199s were assembled and ready for action, though hidden inside a hangar and not even air tested after assembly.

The original plan was to attack El-Arish with five S-199s, but by 29



The C-46 maintained the crucial air bridge to Czechoslovakia between May and August 1948 flying Avia S-199 fighters, weapons, ammunition and supplies to Israel *(Ben-Shachar collection)*



The most important difference between the Czechoslovak Avia S-199 and the German Messerschmitt Bf 109 was the substitution of the original Daimler-Benz engine with a Jumo unit *(IDF Archive)*

May the Egyptian army was only 20 miles south of Tel Aviv and the only available force to support the exhausted Israeli ground forces were the four S-199 fighters at Tel Nof. Attacking the Egyptian forces in the area of Ishdud one S-199 was lost with its pilot, but the mission was a complete success and the Egyptian advance to the north had been halted. On 30 May two S-199s attacked an Iraqi column east of Natanya, but one S-199 was again lost, though this time the pilot baled out successfully over friendly territory. Next day the only available S-199 escorted a Tel Aviv Squadron Dragon Rapide on a daylight mission to bomb Jordanian forces in the area of Latrun, a small but significant pointer that the balance of power in the air was indeed on the verge of a radical change. That night, 31 May/1 June, the Israeli Air Force bombed an Arab capital for the first time when three Tel Aviv Squadron light planes – a Bonanza, a Fairchild and a Dragon Rapide – bombed Amman.

Another historical first for the Israeli Air Force came on 3 June when Mordechai 'Modi' Alon flying a S-199 shot down two Egyptian C-47s that came to bomb Tel Aviv. Next day the Royal Egyptian Air Force retaliated when a Spitfire shot down an Israeli Argus which was bomb-



The Israeli Air Force Bonanza 'bomber' was equipped locally with external bomb carriers *(Senior collection)*

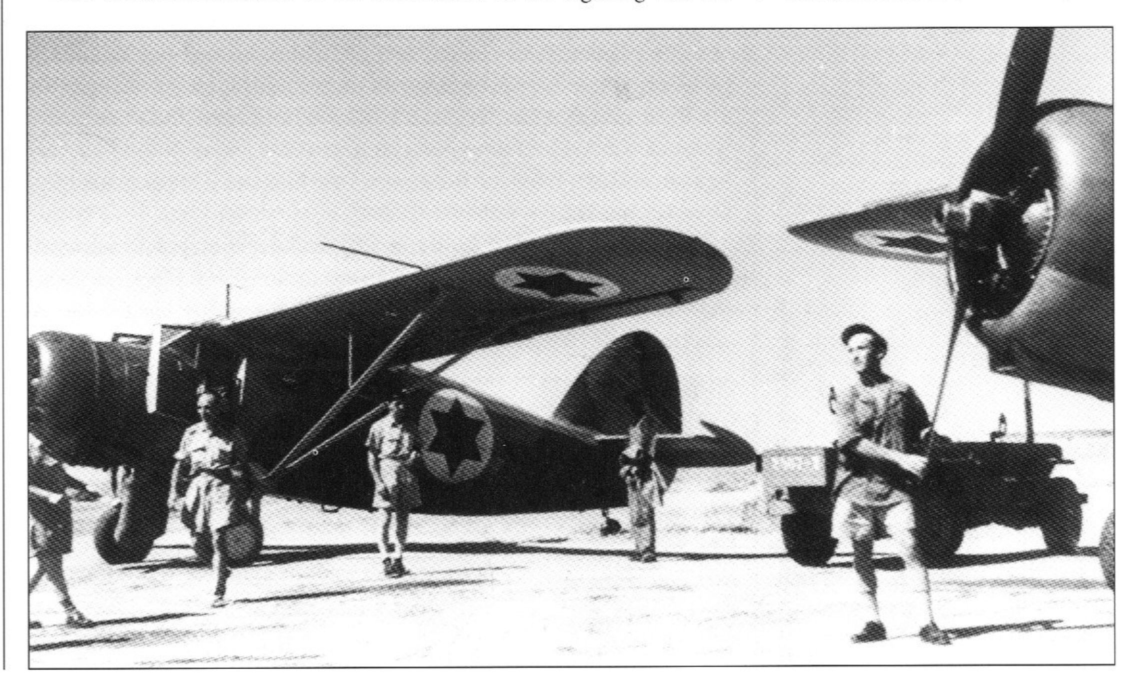


Ex-RAF Auster AOP.5 A-6 of the Galilee Squadron ***(Bodilovsky collection)***

ing Egyptian ships southwest of Tel Aviv. The first direct confrontation between the Israeli and Egyptian fighters came on 8 June when Gideon 'Giddy' Lichtman flying a S-199 claimed an Egyptian Spitfire in an air combat south of Tel Aviv. He recalled: 'I barely caught sight of a Spit heading south along the coast. The throttle was already forward and I very slowly advanced towards him. The Egyptian began a series of half S, dives and turns and other strange manoeuvres trying to avoid me. Time was running short as far as my fuel was concerned. I got on his ass easily and blasted him a number of times. I saw pieces flying from his aircraft. I glanced at my fuel gauge – it was reading zero. The Spit headed towards the earth, pieces still flying from him... After I landed I met Ezer (Weizman) and Modi (Alon), I was debriefed by both of them. Evidently some Israelis below verified the kill.'

The last notable action of the first round of the fighting was the

The Israeli Air Force No 35 Flt operated a small number of Norsemans on bombing and transport missions ***(IDF Archive)***



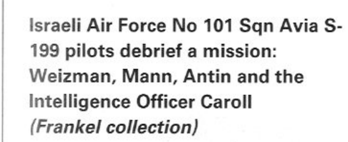
Dragon Rapide G-AKMF was smuggled to Israel from England. It is seen here being camouflaged ***(Senior collection)***



bombing of Damascus, capital of Syria, by an Israeli Air Force C-47 on the night of 10/11 June. The UN announced a 28 days' Truce which ended the first round of the war which had so far been dominated by Arab successes. However, though the skies over Israel were still dominated by the Arab fighters, the arrival of the S-199s had slightly redressed the balance.

Both sides were in desperate need of reinforcements and had to fight a UN arms embargo. Egypt purchased, among other types, Italian Fiat G.55 and Macchi M.C.205V fighters, plus Short Stirling bombers, and even confiscated a Hawker Fury fighter that had been on a sales tour to Egypt. Israel bought anything that flew. More than thirty types of aircraft were acquired from all over the globe in less than a year. Some never made it to Israel, others arrived too late to see action in the war, but the aircraft that did arrive forced the Israeli Air Force into a major expansion and reorganisation. The fighter unit became known as No 101 Sqn and was transferred from Tel Nof to Hertzeliya. At Ramat David No 103 Sqn became the medium transport unit with C-47s while the heavier transports, the C-46s, the C-54s and a lone Lockheed C-69, were organised as the Air Transport Command at Tel Nof. The light plane units, the Tel Aviv Squadron, the Negev Squadron and the Galilee Squadron became known as No 1 Sqn, No 2 Sqn and No 3 Sqn respectively, while No 35 Flt was formed at Tel Nof to operate a few Norseman single-engined transports. Finally, three Boeing B-17 bombers that had been purchased in the USA as civil aircraft and were converted back into bombers in Czechoslovakia were waiting for the green light to be flown to Israel to be operated by No 69 Sqn at Ramat David.

The resumption of the fighting on 9 July highlighted the fact that the Arab regular armies had lost the initiative. During ten days of fighting Israel launched three major offensive campaigns: to drive back the Syrian forces to the international border in the northeast, to widen and stabilise the Jerusalem corridor under threat from Jordanian forces, and to break the Egyptian blockade on the Negev in the south. The Israeli Air Force was meant to support the ground forces but until 15 July it did not live up to



Israeli Air Force No 101 Sqn Avia S-199 pilots debrief a mission: Weizman, Mann, Antin and the Intelligence Officer Caroll ***(Frankel collection)***



expectations. The attack on El-Arish by four S-199s which was meant to open the fighting was a complete failure. One fighter crashed in a take-off accident and the others failed to locate El-Arish and attacked targets of opportunity (most likely civilian) in Gaza instead. One of the three failed to return to Hertzeliya and the pilot, Robert Lester Vickman, was posted missing in action. Another was lost the next day, 10 July, when Maurice Mann and Lionel Bloch flew north to look for the Syrian Air Force Harvards that had very effectively supported the Syrian ground force. The pair intercepted two Harvards and each side lost an aircraft: Mann claimed a Harvard while Bloch was shot down and killed.

While the Israeli Air Force failed to give satisfactory support to the Israeli ground forces, the Egyptian Spitfires and Syrian Harvards were very active and relatively effective. And although the Israeli offensive in the Jerusalem corridor was a success both in the north and in the south, the offensive failed to achieve its objectives.

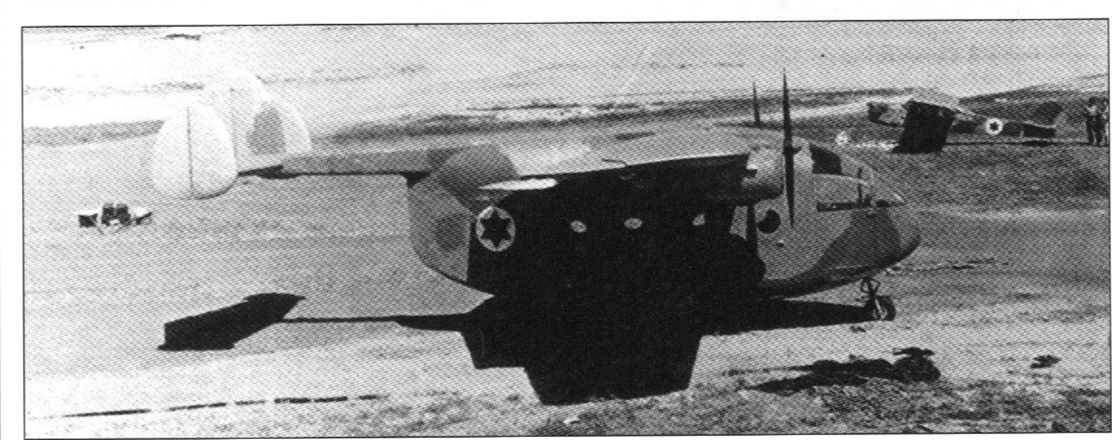
The Israeli Air Force watershed during the ten days of fighting in July 1948 came on 15 July when the three B-17s finally departed Czechoslovakia. The initial plan was that they would bomb Cairo while en route to Israel, but only a single bomber was equipped with an oxygen system and a proper gunsight, so the plan was altered to include three targets: Cairo, El-Arish and Gaza. The Egyptian capital was bombed in the evening with over 100 civilian casualties and no real opposition to the lone B-17, while the other two B-17s – allocated the 'easier' targets – encountered a lot of anti-aircraft fire. The arrival of the three bombers changed the fortunes of the Israeli Air Force. In the first six and a half days of the ten days' fighting the Israelis had dropped nine tons of bombs in 82 sorties, while in the three and a half days that followed the arrival of the B-17s they dropped 48 tons of bombs in another 82 sorties.

In an air combat on 18 July, Modi Alon claimed his third victory when he shot down an Egyptian Spitfire; the Egyptian pilot who was killed was reported as Wing Commander Janzuri.

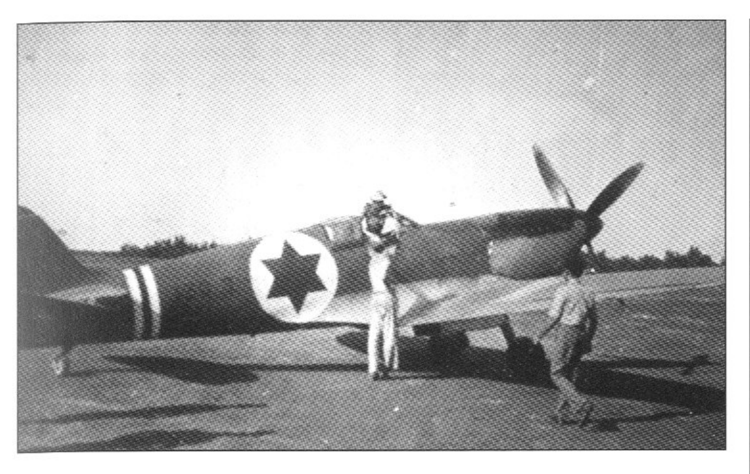
The fighting was once again followed by a UN Truce, though this time the time-frame was undetermined and, just as in the First Truce, both sides did their best to prepare for the inevitable next round. The Israeli Air Force added to its force four Beaufighters that were operated



Egyptian soldiers pose with a part of an Israeli Air Force Avia S-199 lost on 9 July 1948 *(Nicolle collection)*



This Aerovan served the Israeli Air Force for only a month or so. It was lost after an emergency landing on the night of 17/18 July 1948. Local Palestinians murdered the pilot and most of the passengers *(IAFM collection)*



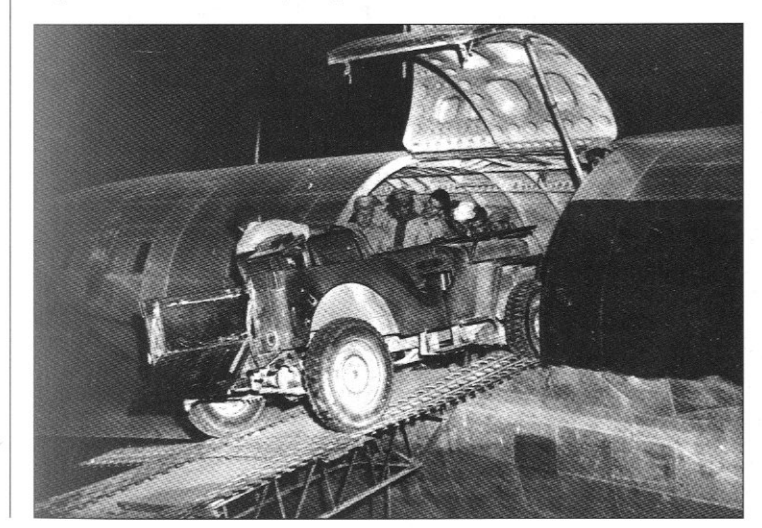
The first Israeli Air Force Spitfire, D-130, was rebuilt from scrap. It was first tested in July 1948 and entered service in August as a photo reconnaissance aircraft *(Senior collection)*

by No 103 Sqn while No 101 Sqn added to its ranks five Spitfires of which two were rebuilt from scrap and three were the first to arrive from Czechoslovakia following a contract for the purchase of fifty.

The most significant aerial action during the Second Truce was the Israeli Air Force Air Transport Command airlift to the besieged Negev. This effort was launched in August and lasted for about two months during which the Israeli Air Force transports, mainly C-47s, C-46s and C-54s, flew 417 round trips. During the airlift 1,911 passengers and 2,224 tons of cargo were flown to the Negev while 2,171 tons of cargo and 3,187 passengers were flown out of the Negev to the north. With the defence of the replenished Negev in the hands of fresh forces thanks to the airlift, Israel launched on 15 October another major offensive to break the Egyptian blockade of the Negev. The Israeli Air Force took a significant part in the action and this time it managed to live up to expectations although the cost was high and painful.

ISRAELI OFFENSIVES

The offensive was opened on 15 October with a successful air raid on El-Arish by two Beaufighters escorted by three Spitfires. On the morning of 16 October Rudy Augarten in a S-199 claimed an Egyptian



A Jeep is loaded into a C-46 during the August-October 1948 air bridge to the besieged Negev *(GPO)*


The second Israeli Air Force P-51, D-191, at Ma'abarot where it was assembled *(Katz collection)*

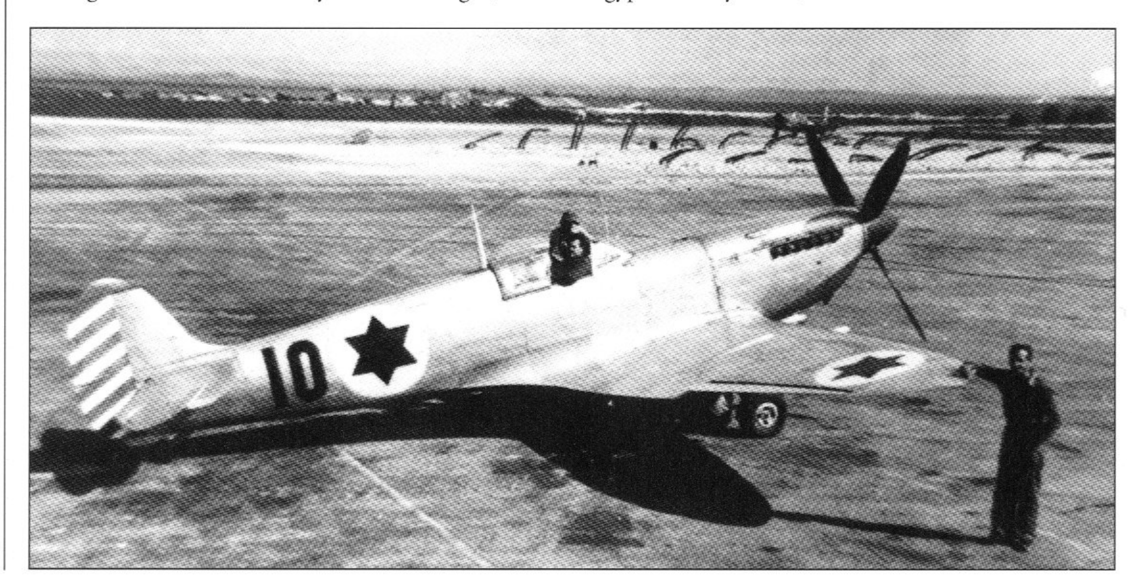
Spitfire in an air combat, but later that day two S-199s were lost: Leon Frankel made a belly landing in a field and Modi Alon was killed when his S-199 crashed near Hertzeliya.

The operational debut of the North American P-51 in Israeli Air Force service was on 18 October when Giddy Lichtman flew a visual reconnaissance mission. On his way back to base Lichtman entered combat with the sole Royal Egyptian Air Force Fury but his machine guns did not fire. Another Israeli loss came on 20 October when a Beaufighter made an emergency landing beyond the frontline. The three crew members all perished. By that day however the Israeli pressure had started to yield results and the Egyptians began to retreat towards Gaza. The Negev blockade was lifted, while a significant brigade-size force of the former blockaders had become trapped around Faluja, an area that became known as the Faluja Pocket.

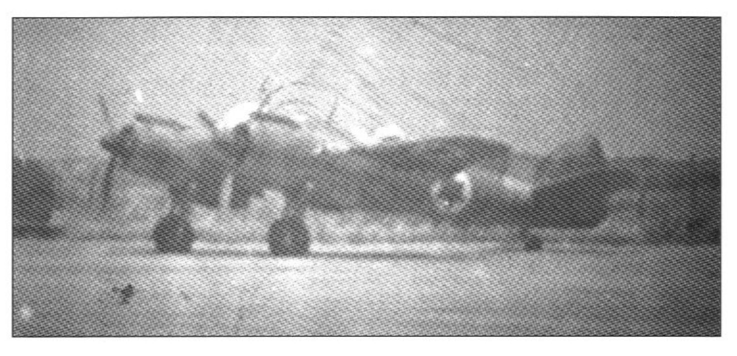
Rudy Augarten claimed a second air-to-air kill on 21 October while flying a Spitfire. His victim was also a Spitfire though the debriefing report also mentioned that Egyptian 'Fiats' participated in that air combat. The Israelis knew that the Egyptians had purchased Italian fighters. They called them Fiats even though the only type of Italian fighter to take part in the fighting was the Macchi M.C.205V.

The fighting came to a halt a week after it erupted with Israel establishing a territorial continuity with the Negev, and the Egyptian army


Lichtman, Alon and the Israeli Prime Minister David Ben-Gurion during the latter's visit to No 101 Sqn on 10 August 1948 *(IDF Archive)*



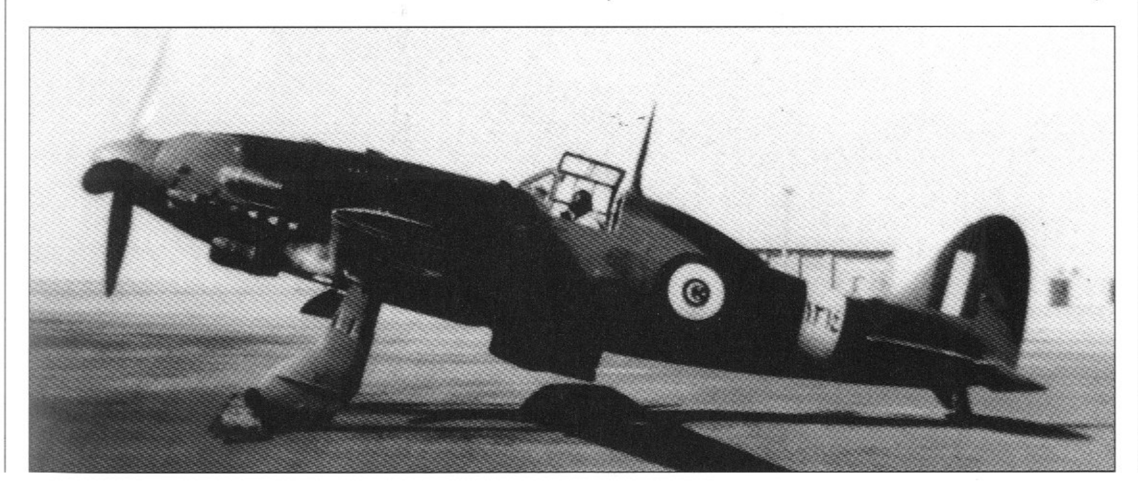
The Spitfire was the dominant Israeli Air Force fighter during the closing stages of the war. Spitfire'10' was in fact the first IAF Spitfire *(Ben-Shachar collection)*

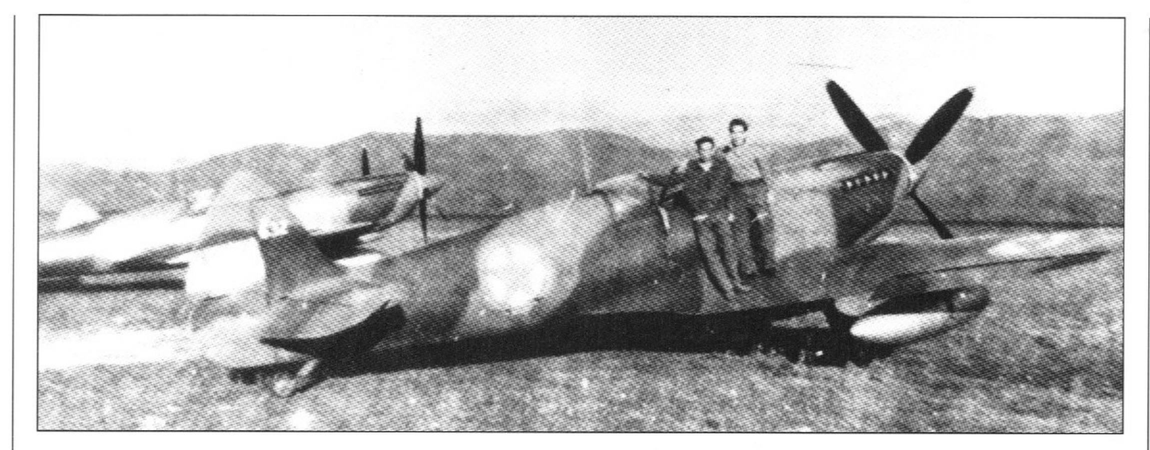

A poor but very rare view of an Israeli Air Force Beaufighter *(Katz collection)*

pushed back towards the international border, except for a solid foothold around Gaza in what has become known ever since as the Gaza Strip. During a week of fighting the Israeli Air Force flew 230 sorties and dropped 151 tons of bombs. Both the Egyptian and the Israeli air forces were very active, but while the latter was operating from the heart of the country to secure the existence of the nation, the former was operating from a remote base far away from home to support a failed invasion. This basic difference has led a number of researchers to conclude that by the autumn of 1948 the balance of power in the air had shifted in favour of Israel. This however was not the case. The ability of the Israeli Air Force to fight the Royal Egyptian Air Force on equal terms in the October conflict was the result of the Israelis making the most of what they had rather than having more equipment than the other side.

A direct result of the successful Negev thrust was an Israeli offensive in the north that secured Galilee from local Arab forces who retreated north to Lebanon. In support of that offensive the Israeli Air Force flew 34 sorties and dropped 27 tons of bombs between 28 and 31 October while encountering no air opposition whatsoever. The Syrian Air Force in the northeast only supported its own ground forces, while the Royal Egyptian Air Force down south had its own troubles. They made an effort to drop supplies to the besieged Egyptian brigade at the Faluja Pocket, but the aircraft used were Spitfires that could only drop canisters with urgent supplies like medicines and cigarettes.

In such an uneasy truce both sides overflew each other's territory.


The Royal Egyptian Air Force introduced the Macchi M.C.205V as a badly needed reinforcement *(Nicolle collection)*



On 4 November two Israeli P-51s on a visual reconnaissance mission to El-Arish attacked an Egyptian C-47 that crash-landed at the air base. It was the third kill claimed by Rudy Augarten in Israeli Air Force service, so added to his two World War Two kills in USAAF service he became an ace. Augarten claimed another kill on 17 November. While flying a reconnaissance mission over Faluja in a Spitfire he encountered Egyptian Spitfires and shot one down. Three days later it was the turn of the RAF to fall victim to the strengthening Israeli Air Force when a No 13 Sqn Mosquito PR.34 on a routine photo-reconnaissance mission over Israel was intercepted and shot down into the Mediterranean by Waine Peake flying a P-51.

An ex-Czechoslovak Spitfire in Yugoslavia en route to Israel. The December 1948 Israeli offensive coincided with the delivery of additional Spitfires to the Israeli Air Force

The final major Israeli offensive that actually ended the war was launched on 22 December 1948 and was once again aimed at the Egyptian army concentrated in the Gaza Strip and in northeast Sinai. The main effort of the offensive was a classic indirect approach manoeuvre to cut off the main Egyptian force from the north Sinai coast road and rail link to Egypt. The Israel Defence Force ground forces were to enter Sinai in the Auja area, push west towards Abu Ageila and then turn north towards the Mediterranean coast. If this main effort were to be successful the whole Egyptian expeditionary force would be trapped in the Gaza Strip.



Israeli servicemen salvage spare parts from a downed Royal Egyptian Air Force Spitfire in early November 1948 *(GPO)*

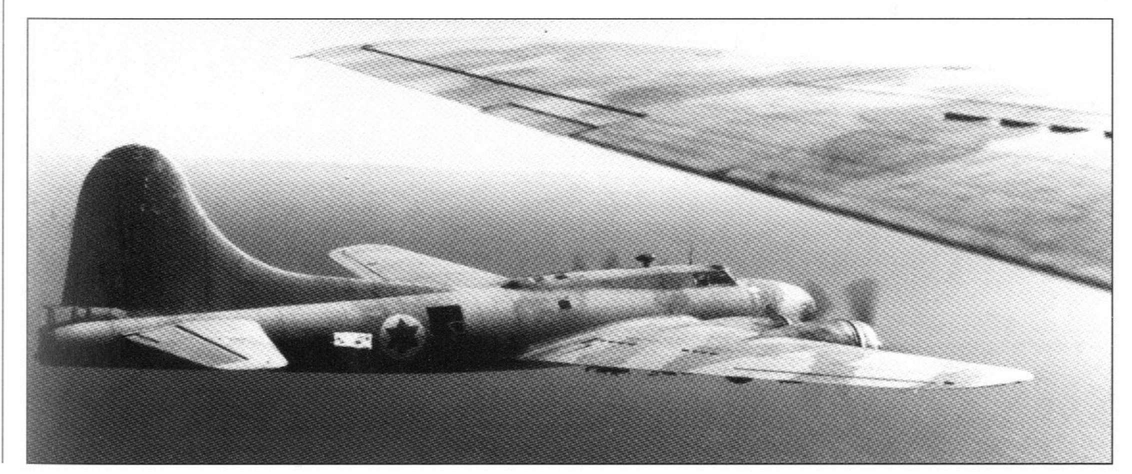




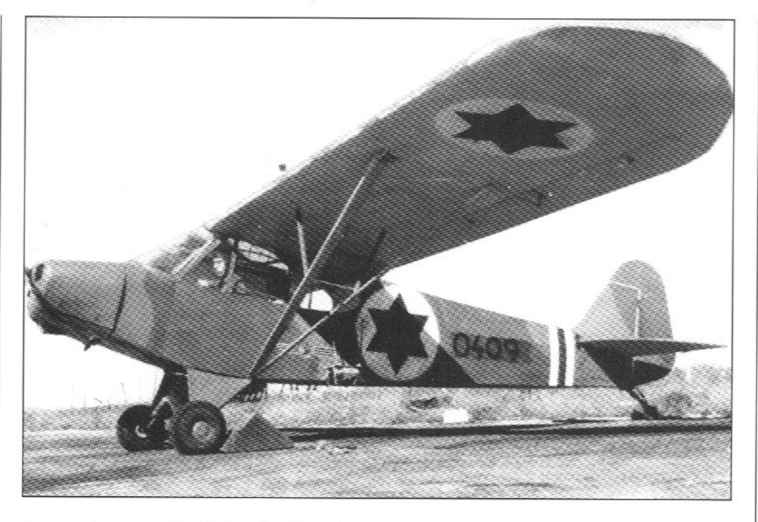
The Harvard was introduced by the Israeli Air Force as a dive-bomber during the latter stages of the Independence War *(IDF Archive)*

The Israeli Air Force supported the offensive with a large-scale bombing effort on various targets within the Gaza Strip, on the El-Arish air base and on the Faluja Pocket. The fighters flew combat air patrols and escorted bombers that included for the first time newly arrived Harvards used as dive-bombers. The Royal Egyptian Air Force responded with a series of bombing missions by Stirling bombers. The first was the bombing of Tel Nof on the morning of 23 December, with both Macchis and Spitfires in action over the battlefield. It was not until 27 December that activity in the air really intensified. That day the Israel Defence Force ground forces captured Auja and began the breakthrough into Sinai beyond the international border, a fact that prompted the intervention of the RAF in the conflict though not directly in the fighting. On the morning of 28 December two Israeli Spitfires which had escorted Harvards to bomb the Faluja pocket entered air combat with four or five Egyptian fighters.

Egyptian fighter activity was intense. At 1630 on the afternoon of 28 December Egyptian Spitfires intercepted the two Israeli Pipers that were supporting the Israel Defence Force ground forces near Auja. One of the Pipers was shot down and both the pilot and the observer were killed. However, two commando raids by Israeli forces on 29



Compared with the Royal Egyptian Air Force Stirlings, the Israeli Air Force B-17s were considerably more effective. Just as in World War 2, the B-17s operated by day and the Stirlings by night *(Ben-Shachar collection)*



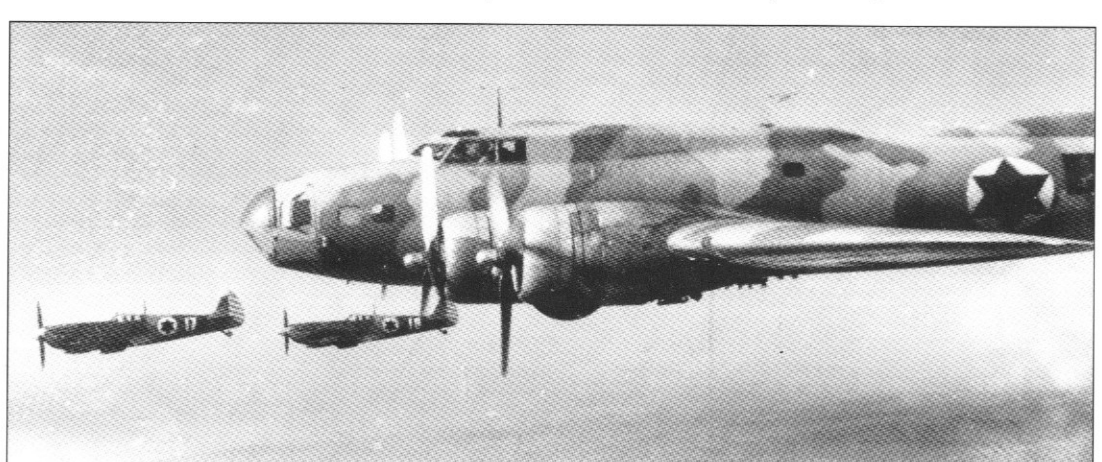
While the B-17 was at the upper end of the Israeli Air Force bombing force, the Piper Cub was at the lower end. This is a Galilee Sqn example. The squadron was deployed to the south during the December 1948 fighting *(IDF Archive)*

December resulted in the Royal Egyptian Air Force withdrawal from El-Arish. The two commando forces departed Abu Ageila, one west to the newly activated Bir Hama air base and the other north towards El-Arish. The first force was discovered, lost the element of surprise and retreated, while the second force captured a satellite landing ground south of El-Arish where an intact Spitfire was captured along with several dummies. While the Egyptian Spitfires from El-Arish were withdrawn west, the Macchis at Bir Hama were still very active.

On 30 December two Israeli Spitfires that patrolled the Abu Ageila to Bir Hama area engaged Egyptian Macchis, and Jack Doyle shot down one Macchi. The same day the RAF and the Royal Egyptian Air Force began a series of joint effort flights to the war zone. Egyptian Spitfires rendezvoused with RAF fighters over the Suez Canal Zone and they flew together to northeast Sinai where the two formations separated: the Egyptian Spitfires proceeding with their attack missions and the RAF fighters with either photo or visual reconnaissance. The Israelis who were monitoring the radio traffic were puzzled by the sudden use of English.

On the last day of the year, 31 December 1948, three Israeli Air Force Spitfires attacked Bir Hama, and Denny Wilson shot down a

Israeli Air Force No 101 Sqn Spitfires escort a No 69 Sqn B-17 *(IDF Archive)*

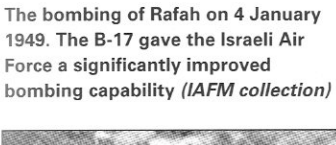


A Royal Egyptian Air Force Spitfire captured by the Israel Defence Force at El-Arish *(GPO)*

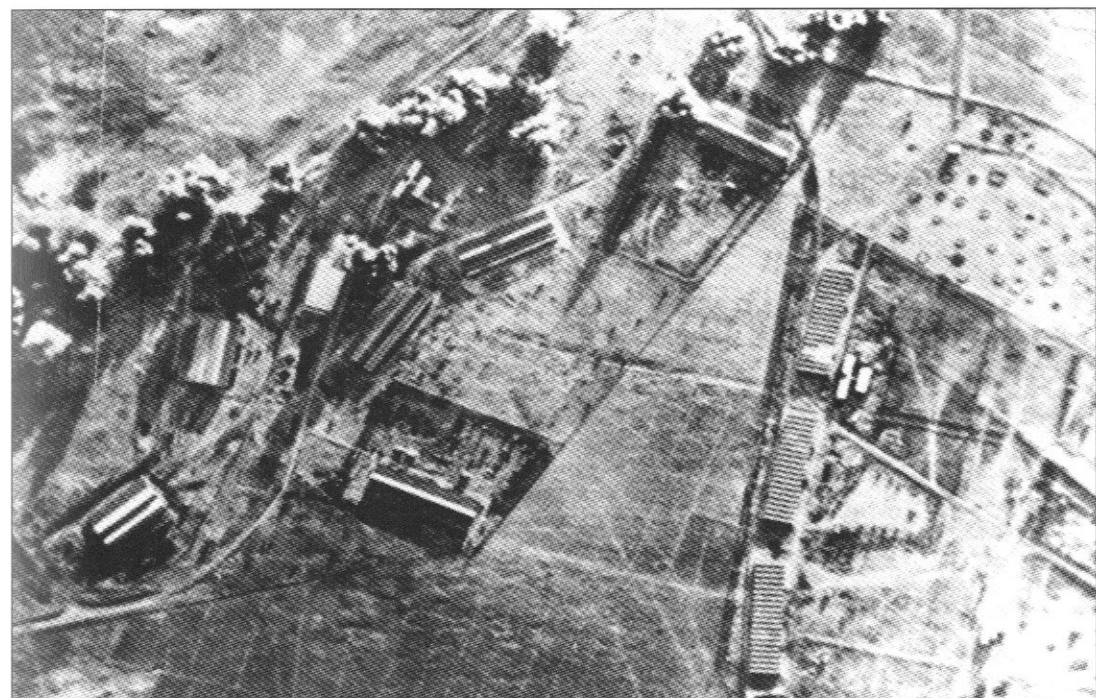


Macchi over the Egyptian air base. Early next morning, 1 January 1949, an Israeli B-17 bombed the Egyptian ships that had shelled Tel Aviv the previous evening, but no hits were recorded.

It was at this stage that the successful Israeli offensive resulted in a British demand that Israel's forces should retreat from Sinai back to the international border otherwise Britain would have to act in accordance with the 1936 Anglo-Egyptian Treaty. The British demand was followed by American diplomatic pressure, and the Israeli Prime Minister David Ben-Gurion ordered the Israel Defence Force to retreat to the international border. This however did not end the Israeli offensive and a new effort to cut the Egyptian army at the Gaza Strip was launched on 4 January 1949 centred on Rafah Junction. In an air combat that day an Israeli Air Force Spitfire flown by Boris Senior shot down an Egyptian Macchi, while the next day another Egyptian Macchi was shot down by Seymour Feldman also flying a Spitfire.



The bombing of Rafah on 4 January 1949. The B-17 gave the Israeli Air Force a significantly improved bombing capability *(IAFM collection)*







Flying Officer McElhaw from No 208 Sqn, RAF, was credited with two kills of Royal Egyptian Air Force Spitfires in May 1948 but was himself shot down by an Israeli Spitfire in January 1949 *(GPO)*

The major diplomatic breakthrough finally came on the evening of 5 January 1949 when the Egyptian Government informed the UN of its willingness to accept a ceasefire and open negotiations with Israel under the UN umbrella. As a consequence a ceasefire was agreed to start at 1600 on 7 January 1949.

The final day of the fighting yielded even more aerial activity than usual. Just before noon the two Israeli P-51s escorted Harvards that dive-bombed Dir El-Ballah while the fighters intercepted Egyptian Macchis, and Jack Doyle shot down a Macchi. At about the same time four RAF Spitfire FR.18s from No. 208 Sqn were flying a routine visual reconnaissance over the area but unfortunately for the British pilots they over flew Israel Defence Force vehicles that had just been attacked by Egyptian fighters, and the alerted Israeli soldiers shot down one of the RAF fighters with anti-aircraft fire. The pillars of black smoke from the previous Royal Egyptian Air Force attack attracted the attention of two patrolling Israeli Air Force Spitfires flown by John McElroy and Slick Goodlin. They then spotted the three remaining RAF fighters and shot down all of them.

Later that day saw yet another clash between the Israeli Air Force and the RAF when the latter sent to the area a huge aerial armada (by the standards of that war) to search for the lost No. 208 Sqn formation. Four No. 208 Sqn Spitfire FR.18s conducted the search at low altitude and were escorted by seven No. 213 Sqn Tempests as medium cover and another eight No. 6 Sqn Tempests as top cover. Only four Israeli Air Force Spitfires attacked the nineteen RAF fighters, and the only aircraft lost in that last air combat of the war was a single Tempest shot down by Bill Schroeder in the initial surprise attack pass.

It was the successful Israeli offensive that brought Egypt to the negotiating table. The ceasefire agreement was signed at Rhodes under the UN umbrella on 24 February 1949 (see Map 2 in colour section). The Egyptian brigade at the Faluja Pocket returned to Egypt while the Israel Defence Force ground forces returned to the international border. The actual defeat in the battlefield of the leading Arab nation and its willingness to negotiate with Israel was an example to the other Arab states who less than a year earlier had invaded Israel on its first day of existence. Lebanon signed a ceasefire agreement with Israel on 23 March 1949, Jordan on 3 April 1949, Syria on 20 July 1949 and only Iraq withdrew its forces without signing any kind of agreement with Israel.

The Israeli Independence War was over but the Arab nations were still reluctant to accept Israel as a legitimate nation.The misery of the defeated Palestinians, many of whom became refugees in the surrounding Arab nations, coupled with the Arab determination to erase the disgrace of the 1948 defeat, made a second round only a matter of time.

An Israel Defence Force soldier points to the RAF roundel on the wreckage of a Tempest that was shot down on 7 January 1949 *(GPO)*

1956: THE SINAI CAMPAIGN

Hostilities in the Middle East continued regardless of the ceasefire agreements. Both sides entered an arms race that saw the introduction of jet fighters into the region. The first jet air combats occurred in the late summer of 1955 and the first victims were two Egyptian Air Force De Havilland Vampire pilots shot down by Israeli Air Force pilot Captain Aaron Yoeli in a Gloster Meteor on 1 September 1955. Another Egyptian Vampire was shot down by an Israeli Dassault Ouragan flown by Lieutenant David Kishon on 12 April 1956.

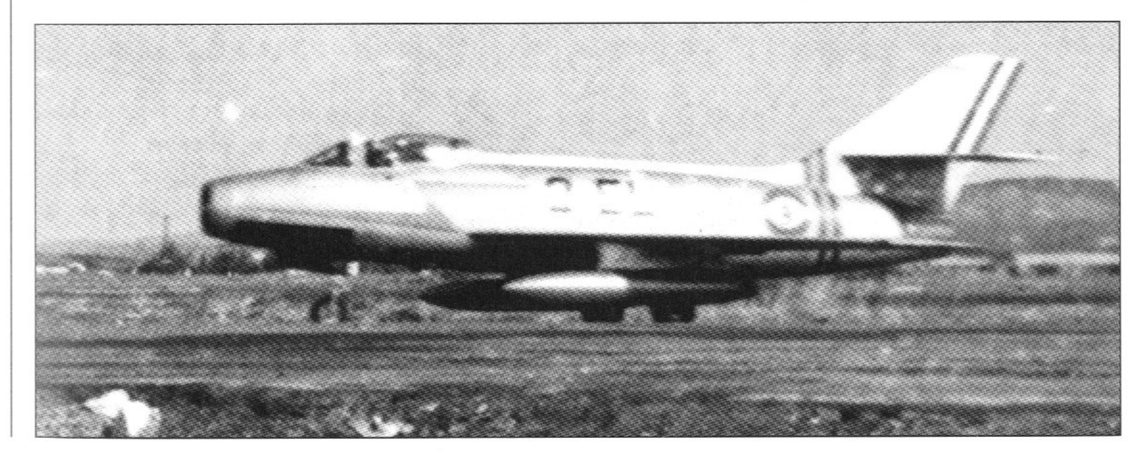
The second round was not, however, the direct result of any deterioration in Arab-Israeli relations but was stimulated by foreign intervention. The nationalisation of the Suez Canal had endangered the interests of both England and France. The two European powers hoped that retaking the Suez Canal would also topple the new Egyptian regime that was supporting anti-colonial movements, especially in French controlled Algeria. Israel merely identified an opportunity to break the Egyptian blockade on the port of Eilat and to inflict severe damage on the Soviet equipped Egyptian armed forces, so the almost unthinkable diplomatic alliance emerged when Israel joined with England and France.

The plan was simple. Israel was to initiate an attack on Egypt that would be relatively close to the Suez Canal. England and France would then issue an ultimatum to both Egypt and Israel to withdraw from the area in order to secure the safety of international shipping. Israel would agree, Egypt would not, and the Anglo-French forces would attack and destroy the Egyptian Air Force and then invade and capture the Suez Canal.



A United Nations observer examines the wreckage of Egyptian Air Force Vampire 1569 that had been shot down by an Israeli Air Force Meteor on 1 September 1955 *(Ben-Shachar collection)*

One of the key elements of Israeli co-operation with England and France was the detachment to Israel of two French Mystère squadrons to protect Israel *(Niv collection)*



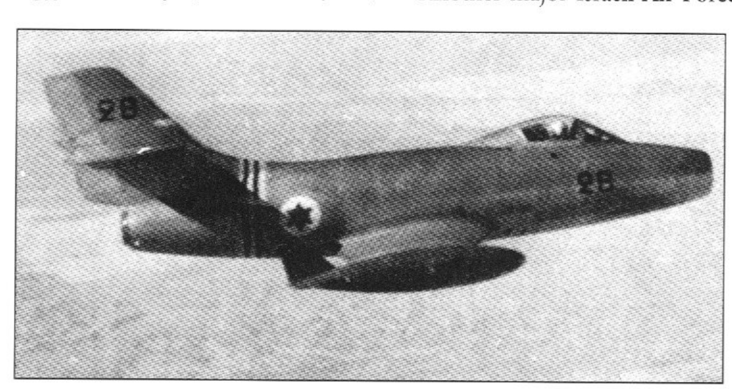


In this Israeli Air Force Meteor NF.13 Captain Tsiddon and his navigator Lieutenant Brosh shot down an Egyptian Air Force Il-14 on the eve of the Sinai Campaign *(Palter collection)*

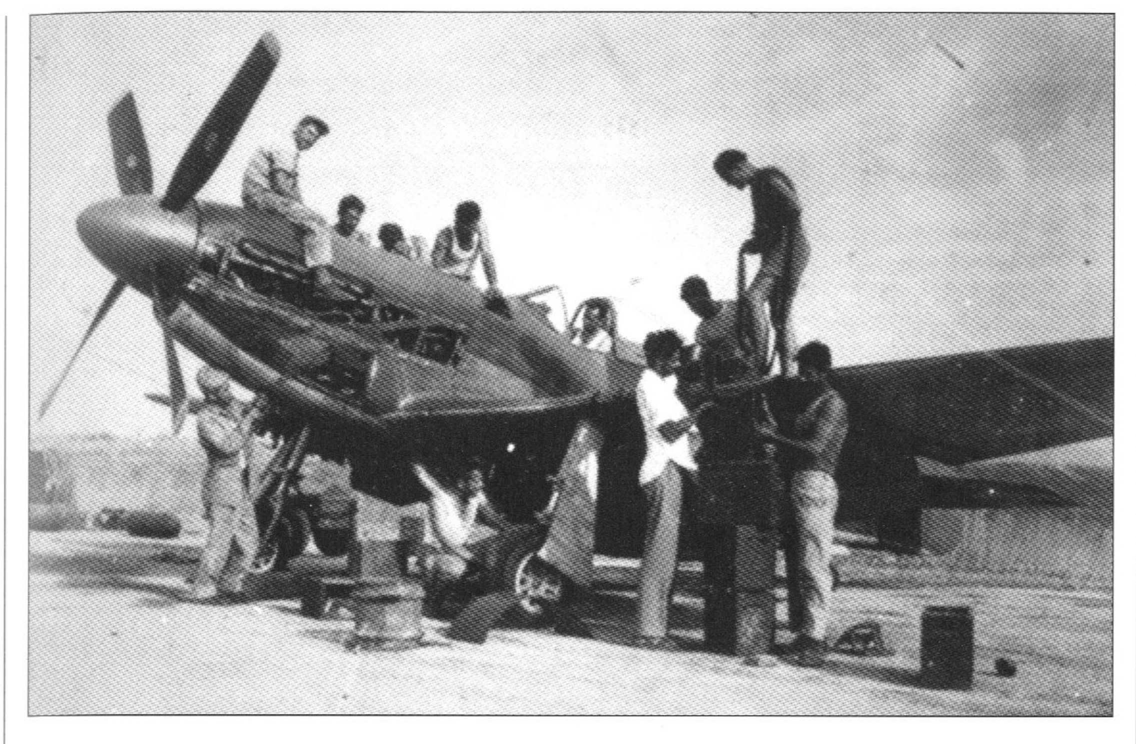
The evening before Israel launched its attack on 29 October 1956, an Israeli Meteor NF.Mk 13 night-fighter shot down an Egyptian Il-14 on a flight from Damascus to Cairo which was supposed to be carrying the supreme commander of the Egyptian armed forces, Marshal Amer. The wrong aircraft was shot down and Marshal Amer was saved. On the afternoon of the next day Israeli paratroopers were dropped at the Mitla Pass, east of the Suez Canal. This was followed by a massive Israeli ground attack into Sinai heavily supported by the Israeli Air Force. On the first full day of the fighting, 30 October, the Israeli Air Force operated only its jet fighters as it was feared that its piston combat aircraft would not be able to hold their own against the Egyptian jets. Initially the Israeli jets flew only combat air patrols but these could not prevent the Egyptian Air Force from effectively attacking the Israel Defence Force. Just before noon the Israeli Air Force was allowed to launch a massive battlefield air interdiction and close air support effort. With dozens of jet fighters from each side operating over Sinai it was only natural that air combats would occur, and indeed the first, inconclusive, action was recorded at about 1530. Later that afternoon the first air-to-air kill in the campaign was claimed when Mystère pilot Lieutenant Yosef Zuk shot down an Egyptian MiG-15 over Kabrit.

Aerial fighting continued at night when Egyptian Il-28s bombed Israeli targets without inflicting any damage. More successful but less fortunate was the Egyptian destroyer *Ibrahim El-Awal* that shelled the Israeli port city of Haifa. The search for *Ibrahim El-Awal* began at night by a naval force, but early in the morning the location of the Egyptian destroyer was pinpointed by an Israeli Air Force C-47 and two Ouragans were vectored by the C-47 to the area. The attack by the two Ouragans was devastating; several rockets disabled the destroyer, which surrendered to the pursuing Israeli ships and was towed back to Haifa port. The *Ibrahim El-Awal* was refurbished and entered Israeli Navy service as INS *Haifa*.

Although the Ouragan played second string to the Mystère during the Sinai Campaign it was an efficient air-to-ground platform, even leading to the surrender of an Egyptian destroyer *(Niv collection)*



Another major Israeli Air Force success that morning was the interception of four Egyptian Vampires by two Mystères over the Mitla Pass. All four Vampires were shot down, and each of the two Mystère pilots, Lieutenant Aaron Shavit and Lieutenant Shai Egozi, was credited with two kills. Later that morning the Egyptians lost a MiG-15 which was shot down by Mystère pilot Captain Ya'acov Nevo. Quite rare in the jet age, the MiG-15 made a belly landing at Bardavil in northern Sinai and was later retrieved by the Israelis.



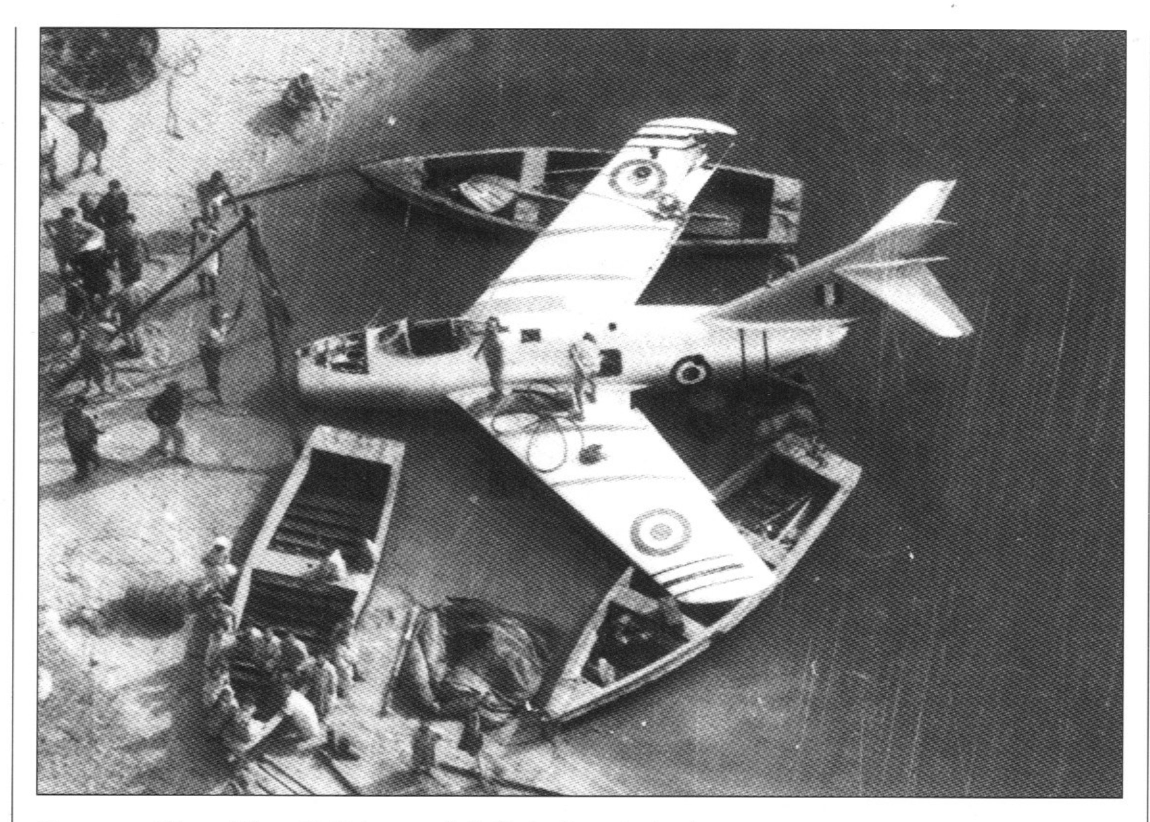
Just like the US Air Force in Korea the Israeli Air Force Mustangs suffered relatively large number of losses in the air-to-ground missions mainly due to the liquid-cooled engine *(Fredlis collection)*

Just before dawn the Israeli Air Force piston combat aircraft – the Harvard armed trainers, the B-17 bombers, the P-51s and the Mosquito fighter-bombers – were finally committed to the fighting. Egyptian anti-aircraft fire was accurate and efficient and the Israeli piston combat aircraft were soon to suffer. Five P-51s and two Harvards were lost during the morning and afternoon hours. The first and last losses involved squadron commanders, both of whom were killed. Captain Moshe Eshel led the first Harvard formation to be despatched but was shot down and killed. Major Moshe 'Monik' Tadmor was killed on his second sortie that day.

The seventh and last Israeli Air Force air-to-air kill in the Sinai Campaign was claimed by Captain Nevo at noon, and the victim was reported as a MiG-17. That evening the Anglo-French forces launched a massive bombing campaign to neutralise the Egyptian Air Force air bases and destroy its aircraft. This action resulted in the complete withdrawal of the Egyptian Air Force from the battle, and after 1 November the Israeli Air Force operated freely over Sinai, although Egyptian anti-aircraft fire was still lethal and accounted for another three P-51s on 1 November alone, though all three pilots survived. Two P-51s, flown by Captain Shlomo Geva and

A captured Egyptian Air Force Sokol light plane at El-Arish *(Ben-Shachar collection)*





This Egyptian Air Force MiG-15 was recovered from Bardavil by the Israeli Navy *(Ben-Shachar collection)*

Lieutenant Eliezer 'Cheetah' Cohen, made belly landings in the desert after being hit while attacking the Egyptian strongpoint at Om Kattef. The latter's return was somewhat unusual as their leader's wingman, Lieutenant Aryeh Fredlis, recalled:

'We had an order that in case of an emergency landing we had to extract the (frequency) crystal from the radio set. Cheetah could not find the crystal so he dismantled the whole radio set. The radios then were large heavy boxes and the story was that he met an Arab with a donkey, took the donkey and returned to the squadron with the radio.'

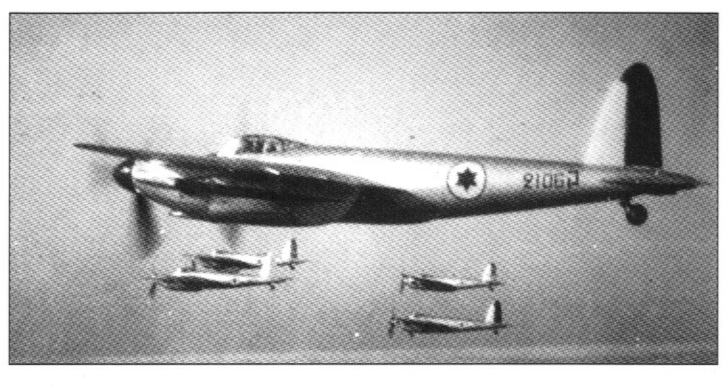
The Anglo-French air strikes that started on the evening of 31 October and the airborne and seaborne invasions which followed on 5 and 6 November respectively probably led to an Egyptian reassessment of the situation and the decision that the Israeli attack was indeed not the main effort. As a result, the Israeli attack gathered momentum and by 2 November most of Sinai was in Israeli hands except for a strip of land east of the Suez Canal (in accordance with the Anglo-French ultimatum), and the southern tip of Sinai where a strong Egyptian garrison was still present at Ras Naz Rani and Sharem El-Sheikh. The Israeli Air Force supported the Israel Defence Force 9th Brigade on its advance towards Ras Naz Rani and Sharem El-Sheikh, and this well defended area cost the Israeli Air Force another two of its combat aircraft. Once again the P-51 that was lost was led by Captain Tse'elon and his wingman Lieutenant Fredlis, although this time Number 3 in the formation was Lieutenant Cohen and his wingman was Lieutenant Yonatan Etkes. The latter was shot down by anti-aircraft fire as Aryeh Fredlis recalled:

'It was at Ras Naz Rani. We got a mission to bomb from high altitude and then to strafe from a safe distance but Etkes descended, we lost sight of him and Cheetah followed him. I then saw that he had made an emergency landing, the aircraft was completely covered with dust and it disappeared. You could no longer see it, it was the colour of the desert.'

Lieutenant Etkes was injured and could not escape. He was taken prisoner by the Egyptian army and was shipped out of the area just before the Egyptian forces finally surrendered. He was released from captivity on 31 January 1957. The other pilot shot down that day over the same area was luckier. Major Binyamin Peled was leading a formation of Mystères when his aircraft was hit by anti-aircraft fire and he had to eject – the first Israeli pilot to use an ejection seat. Despite a



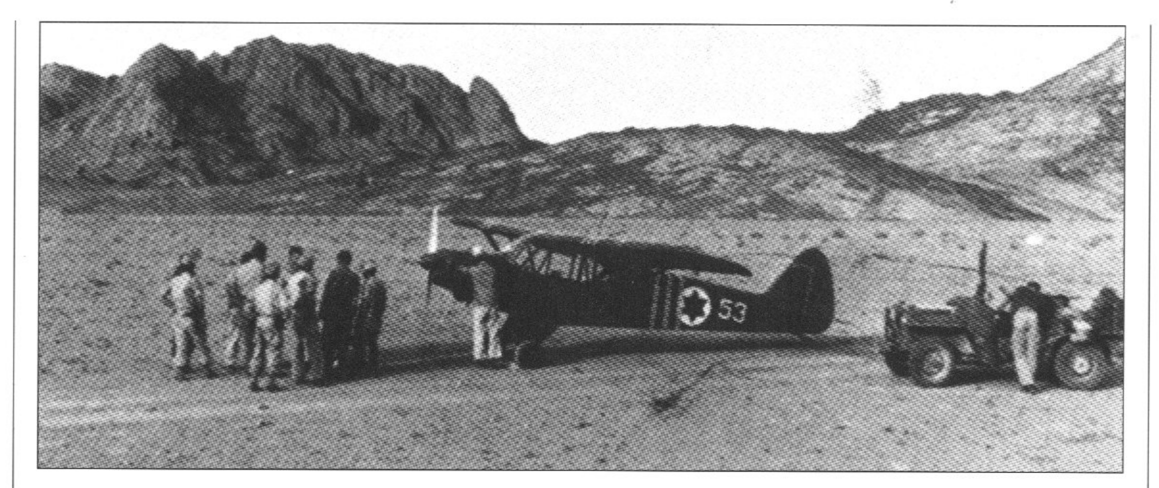
On 2 November 1956 Major Yavneh flew all the way from Ras Naz Rani to Tel Nof in his P-51 with this damaged wing *(Yavneh collection)*



Israeli Air Force Mosquitoes operated in the attack role alongside the Mustangs. None of the Mosquitoes was lost while nine of the Mustangs were lost to anti-aircraft fire *(Easterman collection)*



Captain Eldad Paz was shot down in this P-51 by anti-aircraft fire. He made a belly landing in Sinai and walked 60km in 37 hours to return to the Israeli side of the frontline *(IDF Archive)*



An Israeli Air Force Piper in a typical Sinai Campaign scene *(IAFM collection)*

broken ankle he managed to escape and was later rescued by a Piper Cub flown by 2nd Lieutenant Avraham Greenboim.

The war in Sinai was virtually over, though fighting in the Suez Canal area between the invading Anglo-French forces and the defending Egyptian forces continued until 6 November. While the Anglo-French forces completely failed to achieve their goals, Israel benefited considerably from the short campaign, though it had to evacuate Sinai by the end of March 1957 following massive diplomatic pressure by the two new superpowers, the US and the USSR (see Map 3 in colour section). The Egyptian blockade on the Israeli port of Eilat had been removed, Sinai had been demilitarised with the presence of a UN force, and the French government agreed to help Israel with the construction of a nuclear reactor at Dimona. Slightly more than ten years later the elimination of those achievements by the same Egyptian leadership would result in another war, the Six Day War.

Two Sikorsky S-55 helicopters were operated by the Israeli Air Force in Sinai immediately after the Sinai Campaign *(Yarom collection)*



1967: THE SIX DAY WAR

Paradoxically the 1956 defeat merely strengthened Egypt and its president Gamal Abdel Nasser as the leaders of the Arab world. In the eyes of the Arabs the failure of the Anglo-French offensive was viewed as a major victory, while the Israeli success in Sinai was viewed as the result of the alliance of Israel with England and France rather than any demonstration of Israeli military superiority. The basic issues that were at the heart of the Middle East conflict did not disappear, while the emergence of Gamal Abdel Nasser and Egypt as the leaders of Arab solidarity generated even more hatred towards Israel.

Egypt rebuilt its armed forces with considerable Soviet aid, and Soviet equipment was also supplied to Iraq and Syria, while the main arms supplier to Israel at that time was France. The arms race never stopped in the late 1950s and early 1960s. Supersonic fighters were introduced in 1959 when the Dassault Super Mystère B.2 entered Israeli service and the MiG-19 entered Egyptian service. These was followed in 1962 by air-to-air missile (AAM) armed Mach 2 fighters when the Dassault Mirage IIIC entered Israeli service and the MiG-21 entered Egyptian service. Surface-to-air missile (SAM) systems were

The Egyptian Air Force AS-1 armed Tu-16 bomber was viewed by Israel as the most threatening EAF asset and as such was given the highest priority on 5 June 1967 *(Nicolle collection)*





The Super Mystère was the leading Israeli Air Force fighter between 1959 and 1962. This ex-French Super Mystère was hastily painted in IAF colours in preparation for the Six Day War *(Shapira collection)*

introduced in the early 1960s when Egypt purchased the SA-2 and Israel the Hawk. Throughout this period sporadic local armed clashes were commonplace and all the major air forces took part in the action.

The Egyptian-Israeli border was relatively quiet between 1956-67 mainly as a result of the demilitarisation of Sinai and the presence of a UN force. Nevertheless the Egyptian Air Force maintained its presence in Sinai and rotated its fighter squadrons for a forward deployment to El-Arish air base. Both sides flew reconnaissance missions over each other's territory, and both sides made provocative actions that from time to time resulted in an aerial engagement. In the first half of that period most air combats were inconclusive. However, on 20 December 1958 an Egyptian MiG-17 was shot down by an Israeli Mystère, on 4 November 1959 an Israeli Super Mystère was lost to a spin and on 28 April 1961 an Egyptian MiG-17 was also lost to a spin in an engagement with Israeli Super Mystères.

More intensive armed clashes, which would eventually culminate in



In August 1966 an Iraqi pilot defected to Israel in this MiG-21 in a well-planned Mossad operation *(Katz collection)*



Four Israeli Air Force Mirages in a close 'finger four' formation. In combat the distance between the aircraft in a four-ship formation was measured in hundreds of metres *(GPO)*

the Six Day War, erupted along the Jordanian and Syrian borders. These mainly involved ground forces though air support was also used. On 14 July 1966 an Israeli Mirage flown by Captain Yoram Agmon shot down a Syrian MiG-21. More kills were to follow in both 1966 and 1967, and the shooting down of six Syrian Air Force MiG-21s on 7 April 1967 was the start of a deterioration that was to result in the Six Day War. The USSR supplied Egypt with false intelligence information that Israel was concentrating its forces along the Syrian border. In an act of Arab solidarity the Egyptian president Gamal Abdel Nasser ordered the UN to leave Sinai and the Egyptian Army entered Sinai on 15 May. A week later Nasser announced the closure of the Strait of Tiran to any ships sailing to or from Eilat thus eliminating within a week two of Israel's greatest Sinai Campaign achievements. To counter the Egyptian threat Israel mobilised its reserves, but the Arab threat to Israel became much more dangerous when Jordan joined Egypt on 30 May and Syria on 1 June.

OPERATION FOCUS

Israel's existence was at stake. The dreadful options were either to wait for the Arab attack or to strike first. In early June the latter option was selected and the Israeli Air Force was ordered to prepare to execute an emergency plan that was called *Moked* (Focus). The main idea at the heart of this plan was to launch a surprise attack on the enemy air bases by small formations that would bomb the runways and then return to destroy the enemy aircraft on the ground by strafing. D-Day was 5 June 1967 and H-Hour was 0745.

The first wave of Operation Focus lasted for over two hours during which dozens of Israeli fighter aircraft formations attacked the

Egyptian air bases. Complete surprise was achieved and losses were lighter than anticipated but still it was a tough war that was won by skill and courage. The late Ben-Zion 'Beni' Zohar, then a Captain in the reserve and Number 3 in a Sud Aviation Vautour formation that attacked Abu Sueir, recalled:

'We came low and as we climbed I saw additional aircraft trailing us. We knew that there was a possibility that Mirages would cover us... At first glance I thought that these were the Mirages but then I saw, about 1,000-1,500m ahead of me, an air-to-air missile. I could actually see its spiral trajectory towards the first pair. It was clear to me that this missile could not hit them... and then I realised that what I was seeing were MiG-21s, not Mirages.

'I radioed that I was staying with them (the MiG-21s). They came in a not very threatening manner, more or less at our speed, a little faster. They slowly closed on us, I saw the two pairs trailing us... instead of splitting, lighting their afterburners and chasing us, it looked like an escort! So I sent Number 4 to bomb and I started to turn... if they followed the bombers I would have followed them but they did not follow the bombers. All four of them stayed with me, turning... not a single one of them really threatened me. I did not even jettison my bombs... they were not turning very well. I observed all the mess down there at the air base, smoke from the previous air raids, dust



The famous 'eights' at Abu Sueir air base with at least four Egyptian Air Force Il-28 bombers still seemingly intact *(Shapira collection)*



Colonel Binyamin 'Beni' Peled closely examines the damage to an Ouragan. Peled commanded Hatzor air base during the Six Day War and was the Israeli Air Force commander between 1973 and 1977 *(Shapira collection)*

COLOUR PLATES

1
Avia S-199 s/n D-120

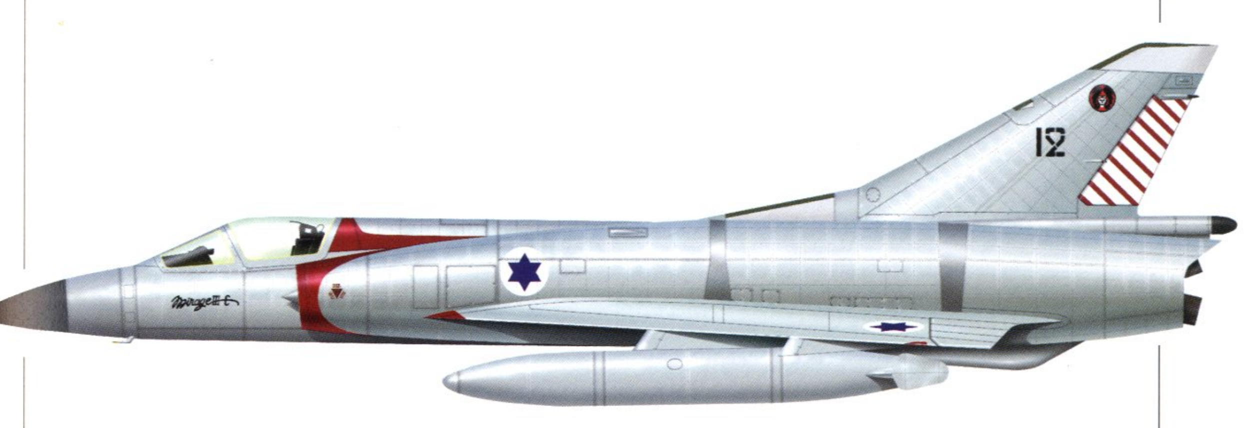
2
Supermarine Spitfire LF.9 s/n 48

3
North American Mustang P-51D s/n 01

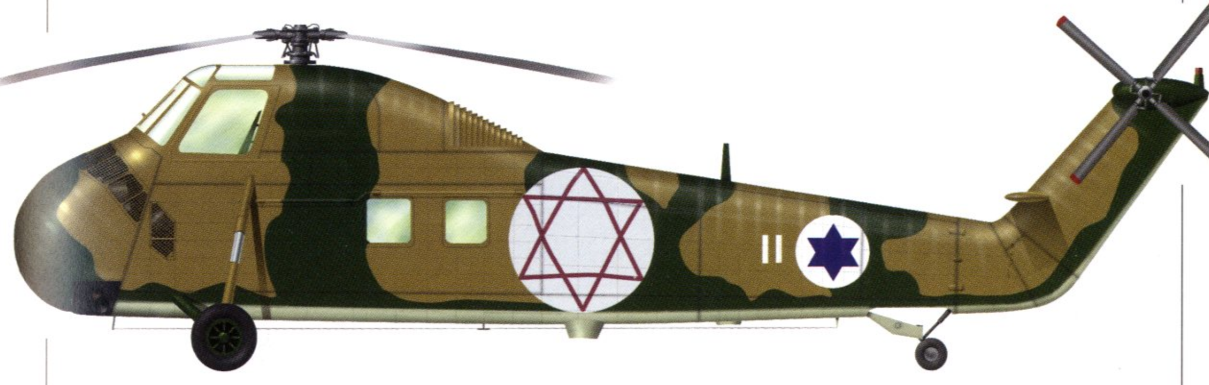
4
Dassault Ouragan s/n 44

5
Dassault Mystère IVA s/n 25

6
Dassault Super Mystère B.2 s/n 31



7
Dassault Mirage IIICJ s/n 12



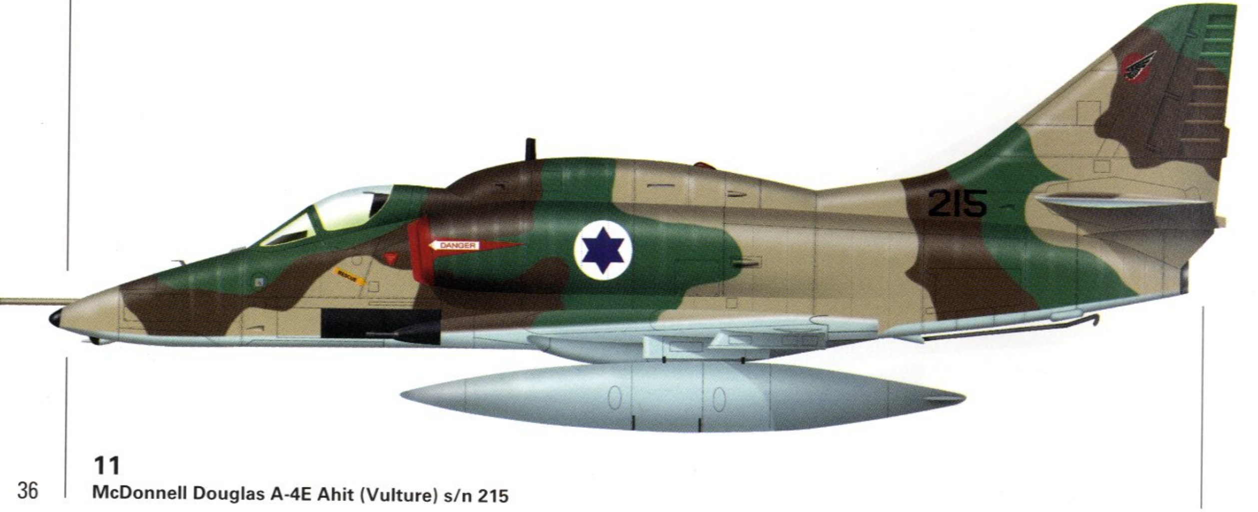
8
Sikorsky S-58 s/n 11



9
Sa'ar (Storm) upgraded Dassault Super Mystère B.2 s/n 33



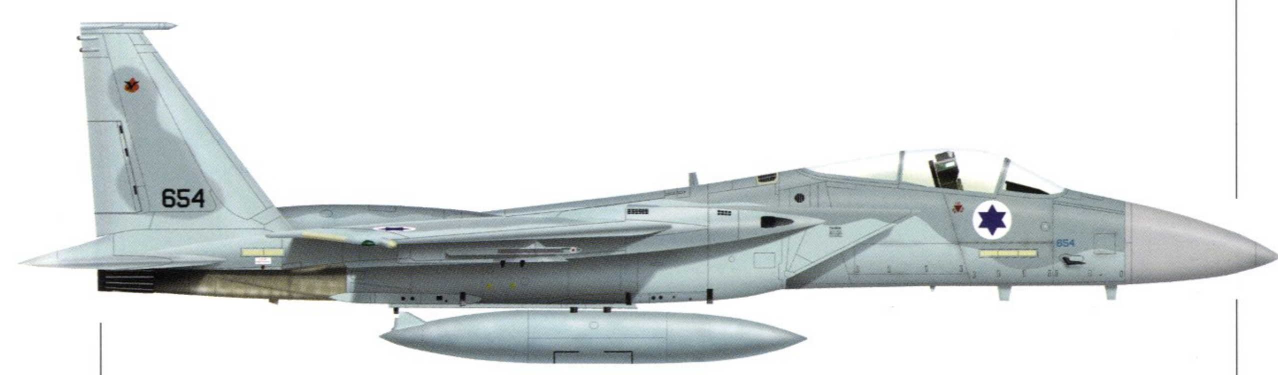
10
IAI Kfir s/n 727



11
McDonnell Douglas A-4E Ahit (Vulture) s/n 215



12
McDonnell Douglas F-4E Kurnass (Sledgehammer) s/n 127



13
McDonnell Douglas F-15A Baz (Buzzard) s/n 654



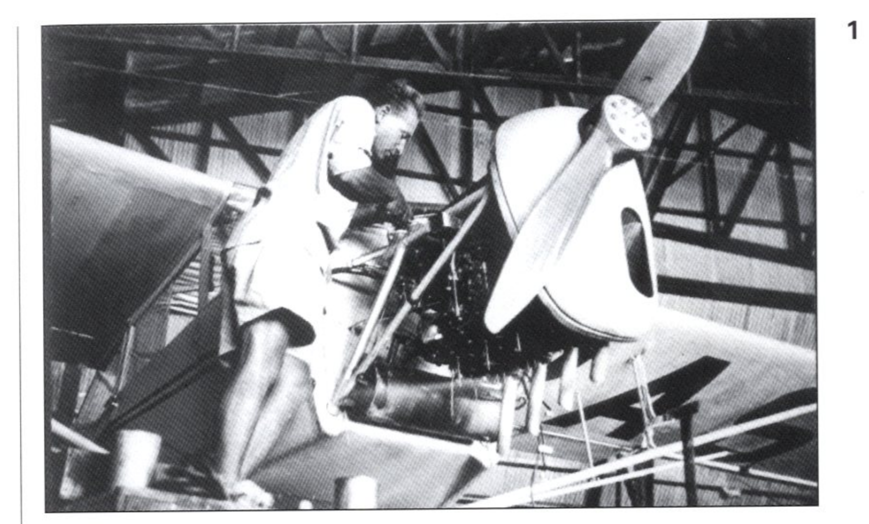
14
General Dynamics F-16A Netz (Hawk) s/n 254



15
Augusta Bell 205 s/n 948



16
Bell AH-1S Zefa (Viper) s/n 118


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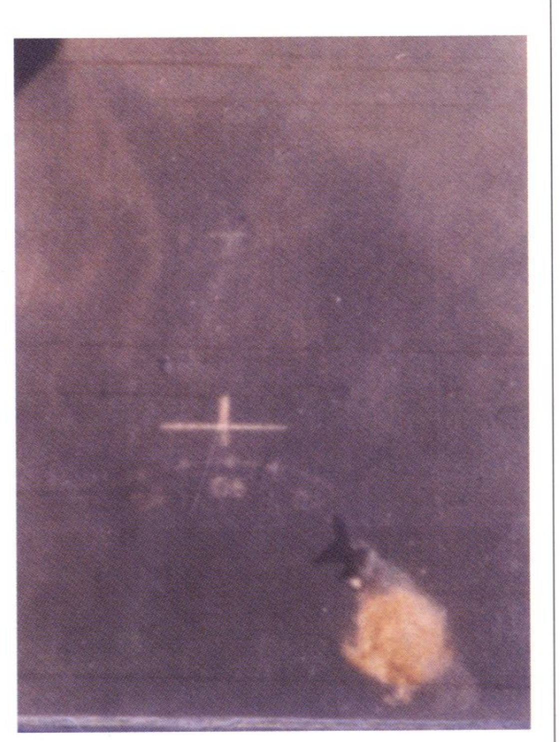


9



10





11



12



13

The partition of Palestine, the UN plan, November 1947

Proposed Jewish State

Proposed Arab State

International Zone

miles/km 50/80

LEBANON
Beirut
Damascus
SYRIA
Acre
Haifa
Sea of Galilee
Nazareth
Tel Aviv
Jaffa
R. Jordan
Amman
MEDITERRANEAN SEA
Jerusalem
Dead Sea
Gaza
Hebron
Rafah
Beersheba
PALESTINE
El-Arish
Abu Ageila
JORDAN
Suez Canal
EGYPT
NEGEV DESERT
Suez
Mitla Pass
Eilat
Aqaba
SINAI PENINSULA
Gulf of Suez
Gulf of Aqaba
SAUDI ARABIA
Sharem El-Sheikh

MAP 1

Israel's boundaries in 1949 after the Independence War

Held by Israel

miles/km 50/80

Beirut
LEBANON
Damascus
SYRIA
Acre
Haifa
Sea of Galilee
Nazareth
ISRAEL
R. Jordan
Tel Aviv
Jaffa
Amman
MEDITERRANEAN SEA
Jerusalem
Gaza
Dead Sea
Gaza Strip
Hebron
Rafah
Beersheba
El-Arish
Abu Ageila
JORDAN
Suez Canal
EGYPT
NEGEV DESERT
Suez
Mitla Pass
Eilat
Aqaba
SINAI PENINSULA
Gulf of Suez
Gulf of Aqaba
SAUDI ARABIA
Sharem El-Sheikh

MAP 2

Israel's 1956 boundaries and occupied zone

Israel's 1949 boundaries

Captured by Israel during the Sinai Campaign

miles/km 50/80

Beirut
LEBANON
Damascus
SYRIA
Acre
Haifa
Sea of Galilee
Nazareth
ISRAEL
R. Jordan
Tel Aviv
Jaffa
Amman
MEDITERRANEAN SEA
Jerusalem
Gaza
Dead Sea
Gaza Strip
Hebron
Rafah
Beersheba
El-Arish
Abu Ageila
JORDAN
Suez Canal
EGYPT
NEGEV DESERT
Suez
Mitla Pass
Eilat
Aqaba
SINAI PENINSULA
Gulf of Suez
Gulf of Aqaba
SAUDI ARABIA
Sharem El-Sheikh

MAP 3

from the current attack. I had to jettison the bombs so why drop them without a purpose? I lowered my nose, entered the smoke and as I exited the smoke I noticed that I was between the runways. There was nothing I could do (to correct the bombing run)... I dropped the bombs.

The Israeli Air Force claimed the destruction of 186 Egyptian Air Force aircraft on the ground during the first wave. Even if this number was a bit exaggerated through multiple claims and optimistic reports it was still a devastating blow to the Egyptians, and the Israeli Air Force was on its way to achieving total air supremacy over the Middle East skies. Israeli losses during the first wave amounted to three Super Mystères (all three pilots killed), two Mystères (one pilot became a PoW and the other was retrieved), four Ouragans (two pilots killed, one a PoW and one retrieved) and a single Fouga Magister armed trainer (pilot killed).

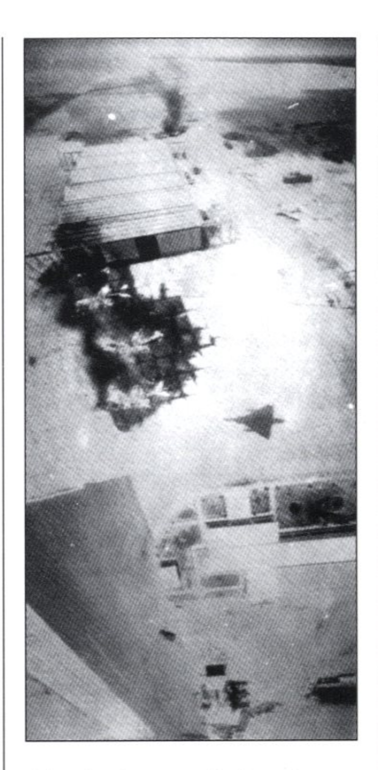
The second wave was launched at about 0900 and lasted until about 1200. The Israelis claimed the destruction of a further 107 Egyptian aircraft during the second wave. The target was still the Egyptian Air Force since Israel hoped that Jordan and Syria would not join the fighting. Simultaneously to the launch of Operation Focus the Israel Defence Force launched a ground offensive into Sinai, but the only aerial assets that the Israeli Air Force could initially spare to support the ground forces was a squadron of Fouga Magister armed trainers and a few helicopters. The main elements of the Israeli Air Force were busy destroying the Arab air forces.

Towards noon it became apparent that Jordan and Syria had joined Egypt when both nations used artillery fire and air strikes to attack Israeli targets. During the third and fourth waves that completed Operation Focus and ended the day, the Israeli Air Force pressed home the attack on the Egyptian Air Force and also almost completely destroyed the Royal Jordanian Air Force and the Syrian Air Force. The Israeli Air Force also attacked a single Iraqi Air Force air base.

A representative mission during the third and fourth waves was a formation of four Super Mystères which was the first to attack the Syrian Marj' Real air base. Ilan Ron, another reserve Captain and the leader of the formation, recalled:

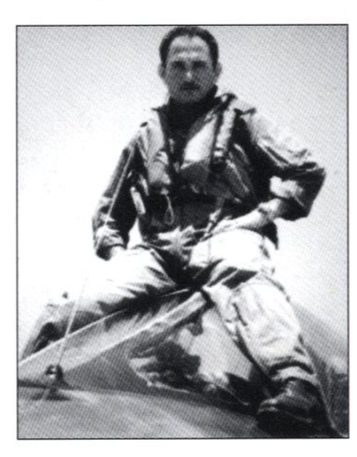
'We had packs of maps. I was waiting to lead a four ship formation to attack Inchas (air base in Egypt) when suddenly I was told, "No, no, you are going to Marj' Real" (and I replied) "Where is it? At least tell me in which country!" It was not a large airfield but there were a lot of MiG-17s. They were completely surprised. We bombed the runway and then strafed. We used to do three strafing passes but I said, "Let's stay until we finish off all the MiGs!" Apparently there was a four ship formation of Ouragans above us, waiting for their turn. They had no radio contact with us so they counted three strafing passes and came in to bomb. They thought that we were getting out but we didn't, oh what a mess!'

Another ten Israeli Air Force fighters were lost (six pilots killed, two became PoWs and two retrieved) plus three Fouga armed trainers and a single Noratlas transport that was destroyed on the ground by Jordanian Hunters. But by the end of the day the Israeli Air Force was in complete control of the skies over the Middle East.



A low level panoramic view of Inchas air base on 5 June 1967. Intelligence information was crucial to the planning of the second, third and fourth waves of the operation *(Ronen collection)*

Major Aaron 'Yalo' Shavit commanded the IAF Super Mystère squadron in June 1967. He was the only Israeli Air Force pilot to be credited with air-to-air kills in both the Sinai Campaign and the Six Day War *(Shapira collection)*





The wreckage of an Egyptian Air Force MiG-17 at a Sinai air base *(Shapira collection)*

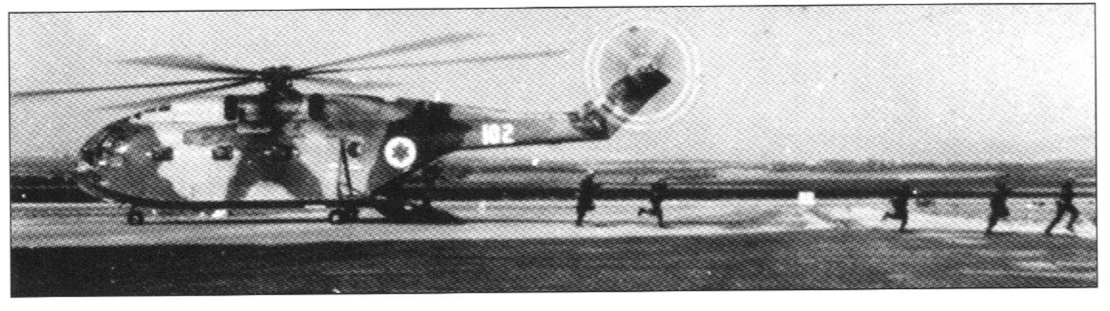
AIR SUPREMACY

Fighting continued for another five days, although the complete air supremacy achieved by the Israeli Air Force paved the way to an unprecedented Israeli victory. Within only six days Israel had captured the Sinai to place a firm foothold on the east bank of the Suez Canal, the West Bank, the Gaza Strip and the Golan Heights (see Map 4 in colour section). The Egyptian, Jordanian and Syrian armies had been defeated as was an Iraqi expeditionary force. In a way this was also a Soviet defeat, not only because the Arab armies that had used Soviet doctrine and equipment lost the battle, but also because huge quantities of Soviet arms, including the latest and most modern weapon systems, fell into the hands of the Israelis.

Major Amos Lapidot commanded No 101 Sqn during the Six Day War. He was the commander of the Israeli Air Force between 1982 and 1987 *(Shapira collection)*



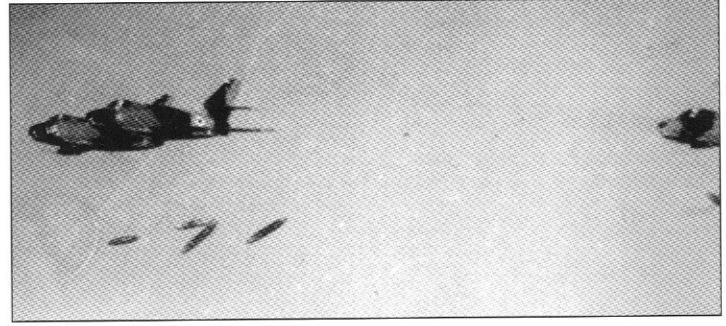
Though victory in the Six Day War was indeed overwhelming the cost was high. The Israeli Air Force had lost almost 25% of its fighter aircraft and, in terms of pilots, its losses were on a par with those of the Arab air forces since most of the Arab aircraft were destroyed on the ground. Thus the importance of the mission that we call today combat search and rescue should not be underestimated. Indeed on the night of 5/6 June a lone Sud Aviation Super Frelon helicopter flew deep into Egypt to search for two Mystère pilots, squadron commander Major Yonatan Shahar and junior pilot Lieutenant Dan Manor, who had been missing since the morning of 5 June when both participated in the first wave of Operation Focus. Major Shahar had led a formation to attack Fayid and was shot down by anti-aircraft fire. He was still unaware that his brother, a Mirage pilot, had been killed on the afternoon of 5 June, while Lieutenant Manor was shot down by an Egyptian MiG-21. The hazardous mission was partially successful when Major Shahar was retrieved, though Lieutenant Manor was captured the next day to become a PoW.



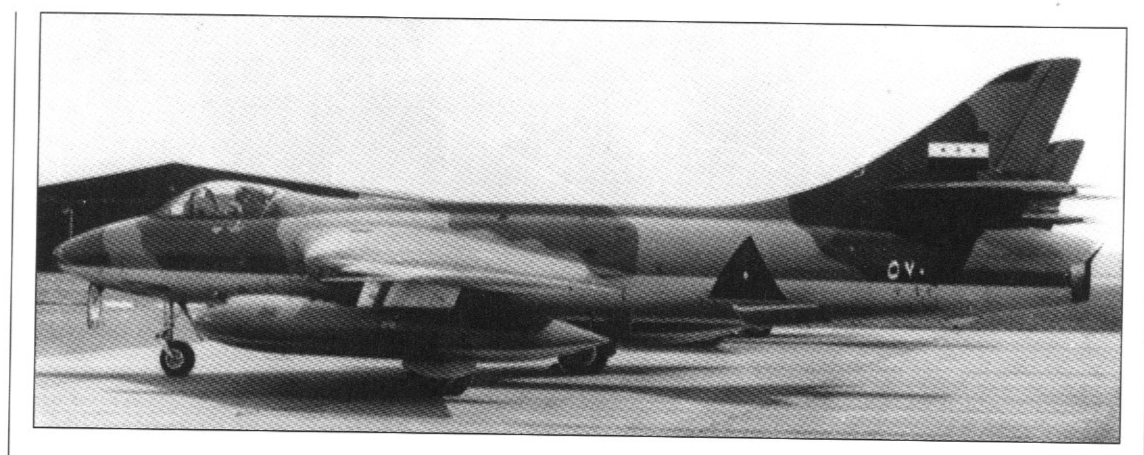
Only four Super Frelon helicopters, out of a dozen on order, were supplied to Israel in time for the Six Day War *(Gazit collection)*

In the early hours of 6 June the Egyptian Air Force attempted to retaliate with what was left of its air power. Within an hour Israeli Mirages shot down five Egyptian Su-7s over north Sinai. More than two hours later a lone Iraqi Tu-16 bomber penetrated Israel to bomb Natanya, a city some twenty miles north of Tel Aviv. Amazingly the big bomber was only intercepted over Megiddo, near Ramat David, on its flight back home. A Mirage pilot claimed that the Tu-16 was hit by a Shafrir air-to-air missile that he had launched, but officially the Tu-16 was shot down by 40-mm anti-aircraft fire. Unfortunately it crashed into an Israel Defence Force base killing fourteen soldiers. Watching the low level flying Iraqi bomber were the aircrews of four Vautour fighter-bombers and the pilots of two Mirage escort fighters who were just about to take off to attack H-3 air base in Iraq. Minutes after the Tu-16 crashed the two Israeli Air Force formations took off and set course for the distant Iraqi air base. The air strike was not regarded as a success though in the air-to-air arena the attackers were quite fruitful. A Mirage pilot shot down an Iraqi Air Force Hunter and a MiG-21, while Captain Beni Zohar was credited with the only Israeli Air Force Vautour kill. He recalled:

Napalm was an effective weapon against 'soft' targets but the delivery profile, a low level pass, could be dangerous *(Gazit collection)*



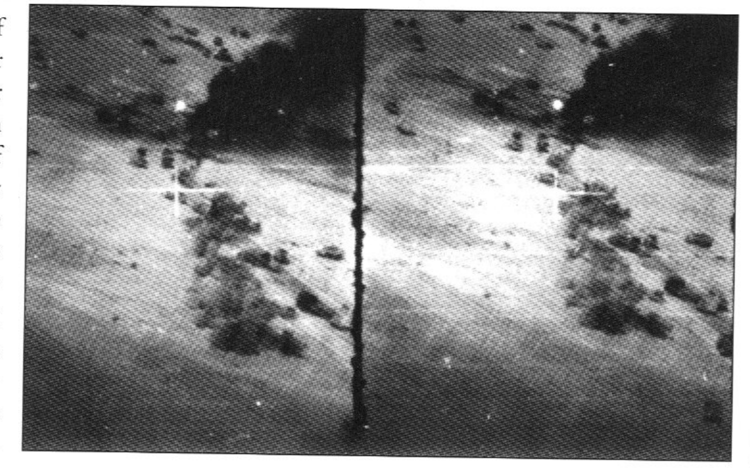
'As he (the Hunter) broke he was in front of me, about 90°, really big, huge, and I am closing on him at great speed and then I realised that my sight was still in bombing mode, not in air-to-air mode. I aimed in front of him, fired a very short burst and I still remember that I saw it like a



Iraqi Air Force Hunter 570. The Hunter, just like the MiG-17, was a tough and manoeuverable fighter *(Nicolle collection)*

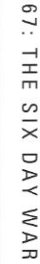
model, every screw, each line, for a split second. We were on a left turn, he reversed to the right, I admired his ability to do such a thing and I pulled-up and waited to see what he would do. I expected him to turn after me and I planned to dive at him, but I saw that he continued in a shallow turn so I dived at him and he crashed on the ground. I did not observe that I hit him, our shells were armour piercing, they did not explode. It looked like the aircraft was not out of control, it did not explode (in the air). Either the pilot was hit or panicked or something, he did not attempt to eject, he did not attempt anything, simply a shallow turn, the aircraft attempted no more air combat. I did not have any trouble getting after him from above, as I was, with the bombs and everything. He simply descended and crashed gently on the ground.'

Beside the glamorous air-to-air mission, the main effort of the Israeli Air Force was battlefield air interdiction and close air support, and the Israeli Mirages claimed another six kills during the day. Despite the complete air supremacy, Arab anti-aircraft fire still took its toll and the Israelis lost on 6 June a single Fouga (pilot killed) near Jerusalem on the Jordanian front, a single Ouragan (pilot retrieved by a Sikorsky S-58 helicopter) over Sinai, two Super Mystères (one pilot taken PoW and the other retrieved by a Sikorsky S-58) over Sinai and a single Vautour that was hit over Syria, but the pilot managed to fly back and eject over Israeli territory.



An Israeli Air Force Mirage attacks Egyptian vehicles in Sinai. IAF Mirage pilot Giora Furman claims that the most amazing gunsight film of the Six Day War did not illustrate an air-to-air kill but the destruction of not less than fourteen vehicles in a single strafing pass by Captain Ifatch Spector *(Epstein collection)*

Following the relative failure of the air raid on the H-3 Iraqi air base on 6 June, the Israeli Air Force planned another air strike on 7 June, with an attacking force of four Vautours escorted by four Mirages. This time however the attack was a complete failure, the defending Hunters shooting down two Vautours and a Mirage. Yet another Arab air base attacked that day was the Egyptian Air Force air base at Ardaka, attacked by the Israelis to deny aerial support from



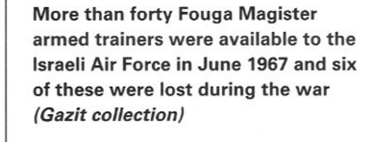


The sizable Israeli Air Force fleet of Sikorsky S-58 helicopters was extensively used during the Six Day War *(Katz collection)*

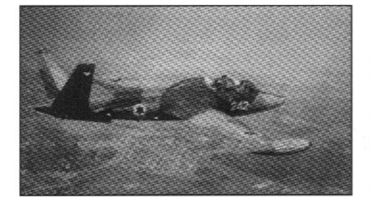
the Egyptian forces in the southern part of Sinai. The Israel Defence Force effort to capture this area included a heliborne assault on Sharem El-Sheikh with both the Sikorsky S-58s and Super Frelons taking part, although the planned airdrop of paratroopers was cancelled when the heliborne forces captured the Sharem El-Sheikh landing strip. The Nord Noratlas transports landed there instead of endangering the paratroopers with an unnecesssary parachute drop.

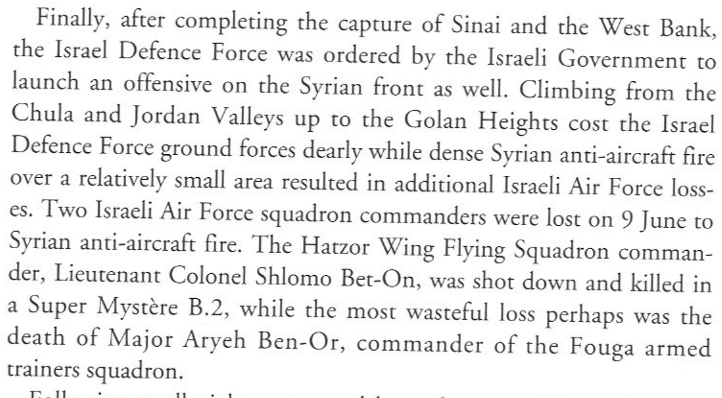
At noon the Fouga armed trainers were withdrawn from combat. The front line in Sinai was by then too far away for them, while fighting in the West Bank was drawing to a close. In addition to the losses over Iraq the Israeli Air Force lost on 7 June an Ouragan, two Mystères and a Super Mystère that was shot down by an Egyptian Air Force MiG-17. All four pilots either ejected over Israeli territory or were retrieved by the S-58 helicopters, while the pilot of the Super Mystère is possibly the only Israeli Air Force pilot to have been shot down twice by an enemy aircraft. The Israeli Mirage pilots claimed that day seven kills including two by Lieutenant Giora Rom, who became with these two kills the first Israeli Air Force five kills ace. Around midnight an Israeli Mirage that had been scrambled to Sinai was shot down by an SA-2 SAM to become the first victim in the Middle East air wars of this new weapon.

Day Four of the fighting, 8 June, witnessed a tragic incident when the Israeli Air Force and the Israeli Navy attacked the US spy ship *Liberty* in error. Thirty-four Americans lost their lives and another 171 were injured. When the error was recognised Israel sent a Super Frelon helicopter to the ship to aid in the evacuation of the casualties, though the furious US seamen understandably rejected the offer. While 8 June was a successful day for the Israeli Air Force Mirage squadrons in the air-to-air arena with eight claimed kills, it lost two of its precious delta-wing fighters. One was lost to anti-aircraft fire en route to attack an Egyptian SA-2 SAM battery at Tel El-Kabir, while the pilot of the other had to eject due to fuel starvation after an air combat over Sinai. Yet another Israeli Air Force fighter was lost when an Ouragan was shot down by Syrian anti-aircraft fire over the Golan Heights. Indeed by the end of the day the Israeli Air Force had shifted its attention to the Syrian front, still largely static although Syrian artillery and Israeli air power were in large-scale use.



More than forty Fouga Magister armed trainers were available to the Israeli Air Force in June 1967 and six of these were lost during the war *(Gazit collection)*





Israeli Mirage pilot Major Dan Sever examines the cockpit of an Egyptian Air Force Zlin trainer at Bir Gafgafa air base, Sinai, in June 1967 ***(Sever collection)***

Finally, after completing the capture of Sinai and the West Bank, the Israel Defence Force was ordered by the Israeli Government to launch an offensive on the Syrian front as well. Climbing from the Chula and Jordan Valleys up to the Golan Heights cost the Israel Defence Force ground forces dearly while dense Syrian anti-aircraft fire over a relatively small area resulted in additional Israeli Air Force losses. Two Israeli Air Force squadron commanders were lost on 9 June to Syrian anti-aircraft fire. The Hatzor Wing Flying Squadron commander, Lieutenant Colonel Shlomo Bet-On, was shot down and killed in a Super Mystère B.2, while the most wasteful loss perhaps was the death of Major Aryeh Ben-Or, commander of the Fouga armed trainers squadron.

Following an all-night party to celebrate the successful completion of their part in the war, the Fouga armed trainer squadron was ordered to Ramat David for operations over the Golan Heights. Yehuda Lev-Ran, who was to lead the first formation, recalled:

'I was already lined-up on the runway when he (Major Aryeh Ben-Or) arrived in a Jeep and said, "Let me fly. I am terribly tired, I want to do one flight and go to sleep". I said, "I am already strapped in and briefed", but it was an order. He replaced me in the cockpit and I returned by foot. When I returned (to the squadron building) I was informed that he was killed. It was absolutely for nothing!'



Israeli Air Force Vautour 14 was lost on 7 June 1967 over H-3 air base in Iraq ***(Ilan Brunner)***



An Israeli Air Force Noratlas transport over Haifa port. The Nords were extensively used during the Six Day War ***(Gazit collection)***

The tiny armed trainers then returned south to Hatzerim and left the scene to the real fighters that were orbiting in 'holding circles' waiting for their turn to attack a small number of well defended Syrian targets within a restricted area.

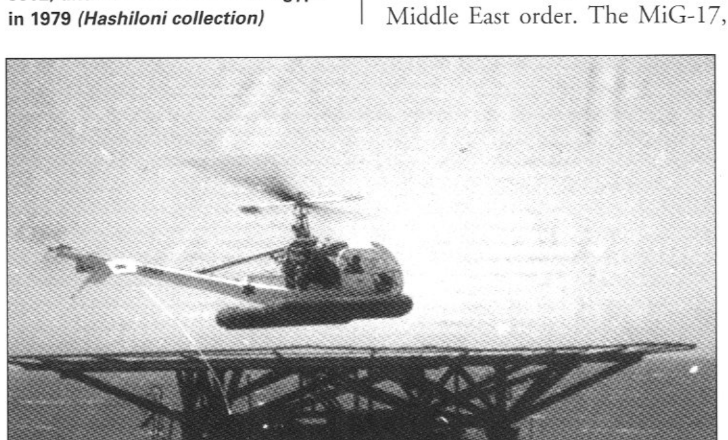
A ceasefire finally came into effect on 10 June 1967 with Israel in control of the Golan Heights, Sinai and the West Bank. These occupied territories were together much larger than the whole area of Israel prior to the Six Day War. The clear-cut results of the war removed the immediate threat to the very existence of Israel through three defence layers: deterrence, losses and buffer zones.

In order to resume hostilities the Arab nations had to rebuild and reorganise their armed forces. The Egyptian Air Force for example had not only lost its forward operating air bases in Sinai but also quite a number of its major bases along the west bank of the Suez Canal now came within range of the Israeli artillery.

Previously the Egyptian attack aircraft were only minutes away from their targets within Israel, but by the end of the Six Day War an Egyptian attack aircraft had to fly hundreds of miles over hostile territory before reaching the target area. Not only was the tactical scenario completely different, it was also evident that the Soviet equipment which was in Egyptian Air Force use was not well suited to the new Middle East order. The MiG-17, MiG-21 and Su-7 fighter-bombers lacked the required range-load performance, while the Il-28 and Tu-16 bombers were too vulnerable.

Finally there was the element of deterrence. There was no doubt that after the Six Day War Israeli deterrence had made a quantum leap. Therefore the fact that hostilities were resumed almost immediately was indeed a surprise, although the set of rules was by then completely different. The age of the 'limited war' had dawned in the Middle East.

An Egyptian civil registered Italian operated Hiller UH-12E-4 was captured by the Israeli Defence Force at Abu Rhodes. The Israelis operated the helicopter, initially as 3302, until it was returned to Egypt in 1979 ***(Hashiloni collection)***



PRESERVING THE STATUS QUO

Winning a war does not always yield the results that the victorious nation had hoped for. If the political leaders of a nation are not up to the standards of its generals than there should be no surprise when the diplomatic exploitation of the fruits of victory are disappointing. Looking back thirty years later, it looks as if the Israeli leadership lost the initiative once the 1967 Six Day War was over.

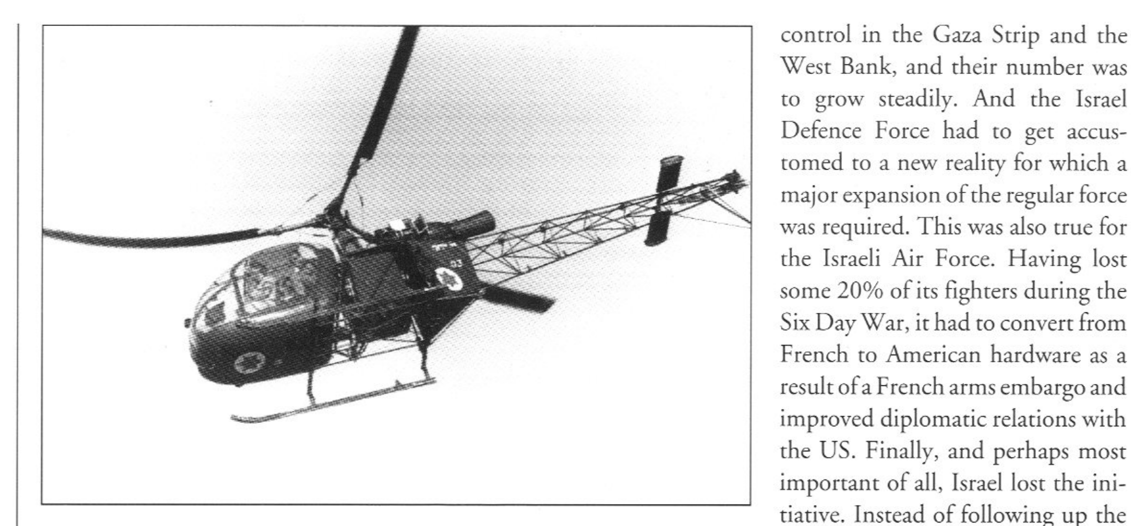
June 1967 changed the Middle East completely. Within days Israel was transformed from a small island surrounded by an ocean of hostile Arabs into a local power. On 5 June 1967 the very existence of Israel was at stake. Its borders were long and almost impossible to defend. At its narrowest point Israel was less than 20 miles wide, and the fact that this point was slightly north of Tel Aviv and in the middle of the country invited an aggressor to attempt to cut the nation into two parts. In the north the Syrian army was positioned on the Golan Heights overlooking and dominating the Israelis down in the Chula and Jordan valleys. The Israeli capital Jerusalem had been divided, and Tel Aviv, the economic centre of the nation, was only forty miles away from the Egyptian border. Most of the air bases of the Israeli Air Force were within range of the Jordanian artillery.

Six days later, Israel occupied three territories larger than its own area before the war. The Golan Heights had been captured from Syria and the Sinai Peninsula had been captured from Egypt, while the Gaza Strip and the West Bank had been taken over from Egypt and Jordan respectively. Somewhat paradoxically the total length of Israel's borders was now shorter than it had been before the war, and the borders were easier to defend. Moreover, on both the Egyptian and Syrian fronts, post-Six Day War Israel enjoyed significant buffer-zones. An aggressor had to penetrate the first Israeli line of defence and then advance either hundreds of miles or tens of miles before reaching Israeli soil. Without air superiority such an offensive could not even be imagined, and if there was one great lesson to be learnt from the Six Day War it was that the Israeli Air Force reigned supreme.

There were, however, drawbacks. More than a million Palestinians had come under Israeli control in the Gaza Strip and the West Bank, and their number was to grow steadily. And the Israel Defence Force had to get accustomed to a new reality for which a major expansion of the regular force was required. This was also true for the Israeli Air Force. Having lost some 20% of its fighters during the Six Day War, it had to convert from French to American hardware as a result of a French arms embargo and improved diplomatic relations with the US. Finally, and perhaps most important of all, Israel lost the initiative. Instead of following up the Six Day War with a diplomatic campaign, the Israeli leaders preferred to sit still and try to preserve what they termed the 'Status Quo', the current situation which suited Israel but was unbearable to its Arab neighbours.



The Israeli Prime Minister Levy Eshkol inaugurates the first McDonnell Douglas A-4 Skyhawk in December 1967 *(IAF)*

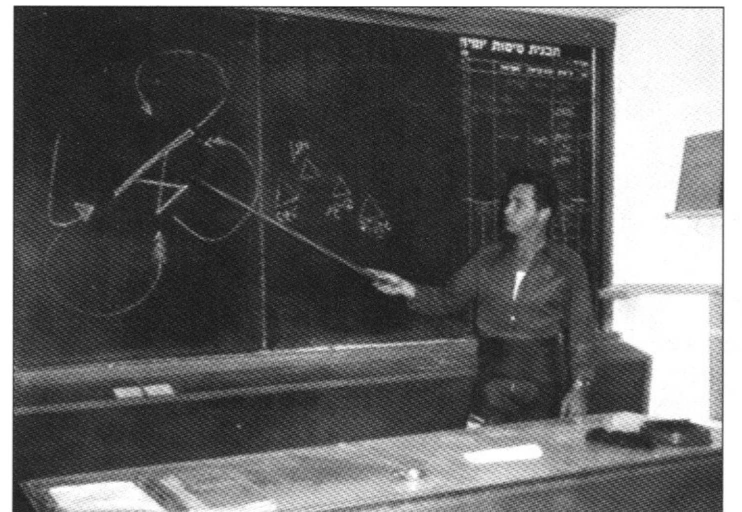


The Israeli Air Force Alouette light helicopter was extremely useful for border patrol. The excellent visibility let the pilot see footprints in the sand *(GPO)*

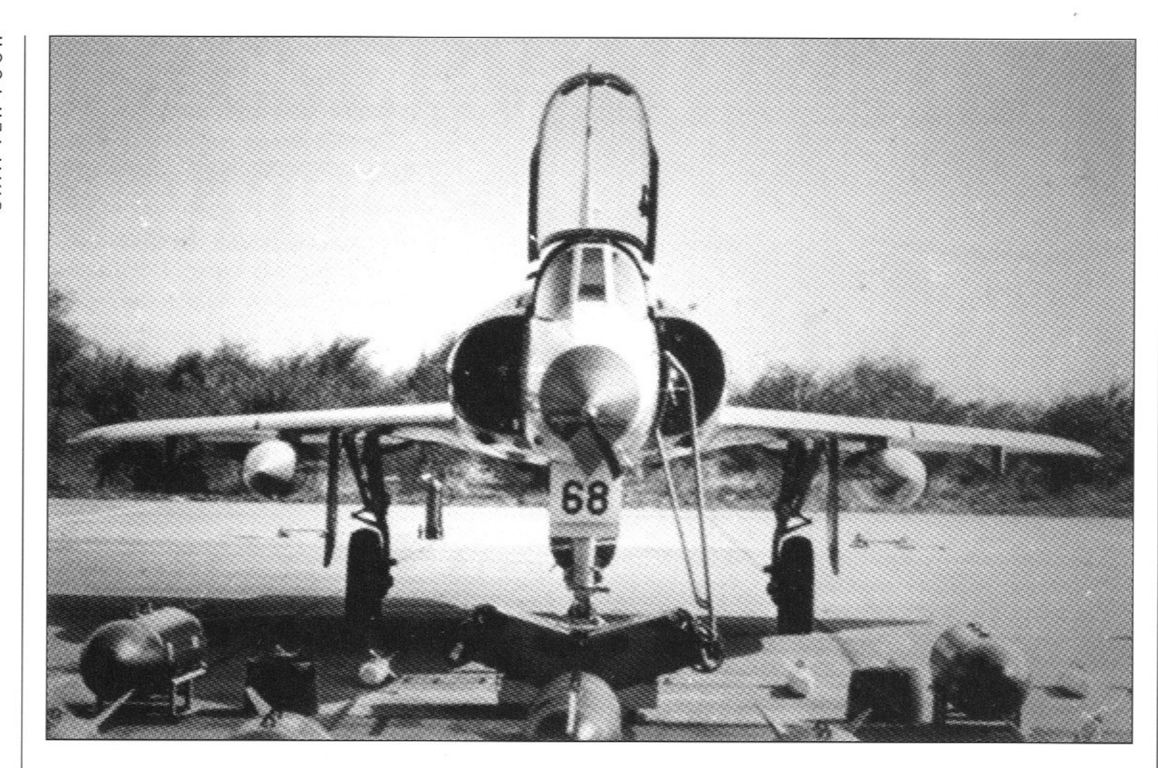
The vital importance of a diplomatic initiative, a fact which Israel failed to understand, was seized upon by Egypt and by its President, Gamal Abdel Nasser. Although Egypt clearly lost the Six Day War it was not willing to admit defeat nor to lose the leadership of the Arab world. 'What has been taken by force will be returned by force' stated President Nasser, and less than a month after the end of the Six Day War hostilities were resumed.

It was July 1967. Egypt was still years away from rebuilding its shattered armed forces, but it already understood the advantages of its forces over the Israel Defence Force: massive artillery fire, small commando attacks and the ability to withstand a large number of casualties. Hostilities were resumed on 1 July 1967 when an Egyptian commando force attacked an Israel Defence Force patrol on the northern sector of the Suez Canal. Both sides suffered casualties. The Egyptians supported their forces with artillery and the Israelis used the Air Force. A series of air combats on 8, 11 and 15 July resulted in six kills claimed by Israeli fighter pilots including two who became aces on 15 July: Ran Ronen with the first Rafael Shafrir AAM kill and Asher Snir with a double kill. In return a single Israeli Mirage was lost.

Egypt did not win this first series of battles, but it did not feel that it lost them either. It was only a matter of learning the lessons, preparing for the next time and waiting for the next opportunity. It came on 21 October when Egyptian fast missile boats sank the Israeli Navy flagship *Eilat* with several salvos of Styx surface-to-surface missiles (SSMs). 47 sailors were lost with the destroyer



Seven kills ace Ran Ronen commanded Israeli Air Force No. 119 Sqn between 1966 and 1968. He is seen here giving a briefing on 3 March 1968 *(Ronen collection)*



Israeli Air Force No. 119 Sqn pilot Eliezer Prigat claimed his first kill on 15 July 1967 in Mirage 68 *(Peleg collection)*

while another 152, 91 of them injured, were rescued by S-58 and Super Frelon helicopters. It was a major blow to Israeli prestige, and Israel retaliated furiously with a massive artillery attack on the oil refineries of Suez City. The Egyptian front along the 100 miles of the Suez Canal was subdued for almost a year. Meanwhile two types of hostile activity emerged along the Israeli-Jordanian border: artillery shelling, especially by Iraqi artillery in the Bet Shean Valley area, and the incursion of small bands of Palestine Liberation Organisation (PLO) guerrillas into Israel.

The Israeli Air Force first operated on the Jordanian border on 21 November 1967. Especially active were Israeli Air Force helicopters, initally the S-58 and then the Bell 205, used for the pursuit of PLO bands in co-operation with ground forces, a classic man-hunt.

A futile attempt to put an end to PLO activity on the Jordanian border was Operation *Tofet* (Hell), a major Israel Defence Force offensive in the area of Karameh intended to destroy the PLO base of operations.

Supported heavily by Israeli Air Force attack aircraft and assault helicopters, the ground forces failed in their endeavour and even had to leave behind several abandoned Centurion main battle tanks. The Israeli Air Force suffered losses as well; on 29 March 1968 a Super Mystère was shot down by anti-aircraft fire while attacking artillery opposite the Bet Shean Valley.



The standard Israeli Air Force medium helicopter immediately after the Six Day War was the Sikorsky S-58. It was used extensively in pursuit of PLO bands along the Jordanian border until replaced by the Bell 205 *(GPO)*



Gradually taking-over from the Sikorsky S-58 as the Israeli Air Force standard medium utility helicopter, the first Augusta Bell AB 205 helicopters arrived in Israel in December 1967, while later deliveries also included Bell 205s *(Peleg collection)*

On the Suez Canal front the Egyptian army was finally ready to demonstrate its superior artillery. Massive barrages of artillery fire on 8 September and 26 October resulted in ten and fifteen dead Israel Defence Force, servicemen respectively. The Israel Defence Force launched a comprehensive effort to rebuild its strongpoints along the Suez Canal to be able to withstand artillery fire, but it was clear that such passive action was not enough.

On the evening of 31 October Israeli Air Force Super Frelon helicopters flew deep into Upper Egypt to damage a bridge, a dam and a transformer station in a daring commando raid that shocked Egypt and disrupted its planning. The Israeli Super Frelons demonstrated to the Egyptian leadership that local artillery superiority along the Suez Canal was not enough to wage war: Israel was not commited to the Egyptian rules of engagement. The 31 October 1968 action showed that Egypt had its own weaknesses too and that Israel was ready to exploit them to the full.

Although the Suez Canal front became relatively quiet for more than four months while Egypt was preparing its reply to the new Israeli challenge, the Jordanian front was still very active. Israeli Air Force Bell 205 helicopters were used on the evening of 1 December to destroy an Amman-Aqaba railway bridge and a road bridge in a commando raid in a futile attempt to show that the economic price of waging war can be unbearable. Four days later an Israeli Super Mystère was lost over Jordan during a massive Israeli air strike on the Iraqi expeditionary force opposite the Bet Shean Valley. While on 10 December the only air-to-air kill

Two Syrian Air Force MiG-17s landed in error in Israel on 12 August 1968 and Israeli Air Force pilots evaluated one of these in flight *(IAF)*





A dozen Super Frelons were purchased from France and delivered to the Israeli Air Force between 1966 and 1969. The Super Frelons were the backbone of Israel Defence Force special operations in 1968-69 *(GPO)*

claimed by the Israelis during 1968 was achieved when an Egyptian MiG-17 was shot down by Oded Marom, IAF No. 101 Squadron commander.

Yet one more Arab nation was to suffer from an Israeli commando raid when both the Bell 205s and the Super Frelons co-operated on the evening of 28 December to hit Beirut international airport. In retaliation against Arab sponsored Palestinian air piracy and the hijacking of airliners, an Israeli commando force blew up thirteen Arab airliners. Once again Israel demonstrated its ability to strike hard and exert painful losses in a single concentrated action, while the Arabs relied on the cumulative effect of their many small actions. With the Egyptian border still relatively quiet Israel felt confident enough to strike hard at Syria on 24 February 1969 in retaliation against uneasiness that had developed along the border earlier in the year. The Israeli Air Force attacked PLO camps in Syria, and the Syrian Air Force had no option but to scramble its interceptors. By the end of the day a single Syrian MiG-17 and a single Syrian MiG-21 had been shot down by Israeli Mirages.

Chief of Staff Chaim Bar-Lev being baptised by Israeli Air Force ground crews after his solo in a No. 100 Sqn Piaggio P.149 in 1968 *(Kaspit collection)*



1969-73: THE ATTRITION WAR AND AFTER

Egypt was finally ready to resume hostilities along the Suez Canal on 8 March 1969 with a massive artillery attack. Though it was definitely not known at the time, this was the first day of the Attrition War, a long static war along the Suez Canal that lasted until August 1970. Although an Israeli Air Force Mirage pilot managed to shoot down an Egyptian Air Force MiG-21 on 8 March, the next day an Israeli Dornier 27 observation aircraft was shot down by an Egyptian SA-2.

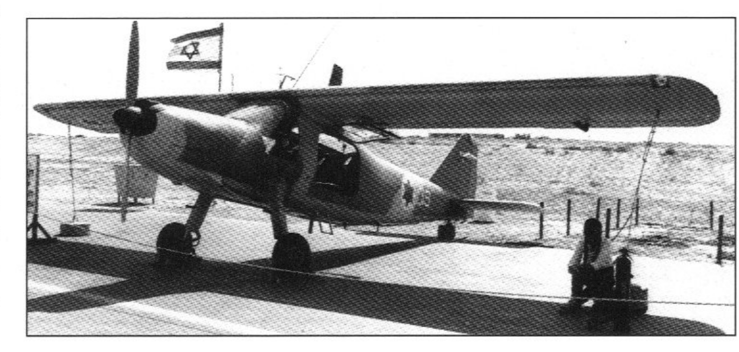
The first phase of the Attrition War lasted until July 1969 and during this stage the Israeli Air Force attack force was not used on the Egyptian front mainly due to fear of escalation. Attacks on Jordan continued throughout that period and on 22 April 1969 an Israeli Vautour was lost when a Jordanian radar station that monitored Israeli Air Force activity was attacked. Israeli heliborne commando raids into Egypt also continued and inflicted material damage, although with no real effect on the frontline where Egypt still had the upper hand.

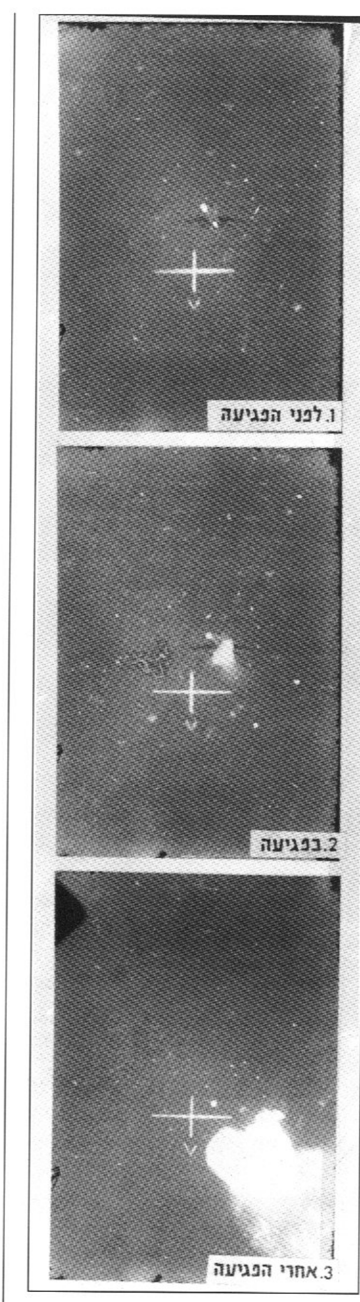
In the air however the Israeli Air Force still reigned supreme, with five air-to-air kills in April and May. The last of these was a second kill for the Rafael Shafrir AAM. Israel decided to exploit this advantage to the full in a show of force that began in mid-June and lasted until early July.

Four Israeli Air Force Mirages made a low-level supersonic boom over the Egyptian capital Cairo on 17 June 1969, an action that resulted in both the commander of the Egyptian Air Force and the commander of the recently formed Egyptian Air Defence Force being dismissed.

A week later the Israeli Air Force launched an air-to-air campaign in an isolated area south of Suez City. With Israeli Mirages flying at will over Egyptian soil the Egyptian Air Force had no option but to scramble its interceptors with the inevitable result: ten Egyptian MiG-21s were lost by 7 July, one of these being the first victim of the new Rafael Shafrir 2 AAM. In a completely unrelated action, the next day Israeli Mirages shot down seven Syrian Air Force MiG-21s including two claimed by Giora Furman, the Hatzor Flying Squadron commander. Furman recalled:

The Israeli Air Force used its Dornier Do 27 observation aircraft for artillery spotting and two were lost to surface-to-air missiles in 1969: the first to an Egyptian SA-2 and the second to a 'friendly' Hawk *(GPO)*





Israeli Air Force No. 119 Sqn pilot Ran Ronen was credited with his sixth kill on 21 May 1969 *(Rozen collection)*

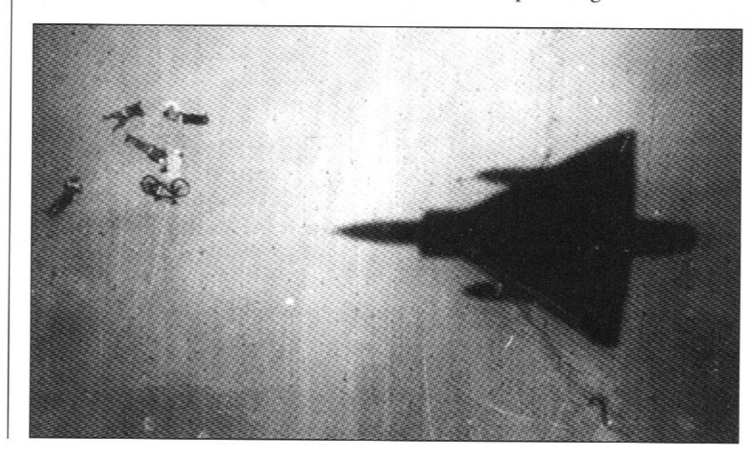
'When Yak (Col Ya'acov Nevo, the Hatzor air base commander) was abroad I organised for myself a good mission and caught two MiG-21s over Damascus... Ben-Eliyahu (Capt Eitan) was Number 2 and we were joined by a pair from another squadron which was led by (Maj) Ran Goren. We shot down seven MiG-21s out of eight.

'My film showed one of the few instances in which the radar was used in combat. Pilots who did not use the radar got as close as 200m and even less. This kill was with the radar and from 400-500m, a classic. We used that film for years to explain to pilots that a kill with a radar lock was possible. You had to be patient and pilots usually got excited when they entered air combat with a fluctuating radar lock, so there were switches on the stick which fixed the ranges and indeed most of the kills were from short ranges.'

Though the air-to-air campaign was a great success for the Israeli Air Force it actually had no effect on the Suez Canal front, on the contrary. The Egyptians concluded correctly that Israel was under great pressure, and their action along the Suez Canal was intensified with efficient artillery fire, annoying sniper activity and deadly commando raids.

In July 1969 the Israel Defence Force lost 29 soldiers dead on the Suez Canal front including seven in a single Egyptian commando raid on 12 July. It was time to involve the Israeli Air Force directly in the fighting and, with the attention of the world focused on the moon, Israel had the perfect opportunity to launch a massive aerial attack along the Suez Canal. On the day that the US astronaut Neil Armstrong stepped on the moon, 20 July 1969, Israel sent its Air Force to the Suez Canal. As could have been expected, the massive Israeli air strike generated intensive Egyptian Air Force activity. In air combats two Israeli Mirages were lost as well as one Egyptian MiG-21 and two Egyptian MiG-17s, while a third MiG-17 was shot down by 40-mm anti-aircraft fire and a single Egyptian Su-7 was shot down by a Hawk surface-to-air missile. On that day, Aryeh Dagan, a reserve A-4 Skyhawk pilot, attacked an Egyptian 57-mm anti-aircraft battery at Port Fuad. He later recalled:

'The neutralisation of the battery was planned to allow another four-ship formation from the squadron to attack the SA-2 battery at Gamil. We taxied, took off and flew at low altitude in radio silence carrying napalm bombs that did not require a pull up but only a low level pass with reduced chances of early detection. As the landscape changed from desert dunes to salt swamps we changed to line astern in pairs and set course to attack at full throttle with the aircraft accelerating to the maximum speed. I was concentrating on flying the aircraft and looking forward to identifying the target as soon as possible. The port and the city appeared on the horizon and the leader who identified the target broke the radio silence. I then clearly identified the battery with several vehicles and a cannon barrel in position. A long press on the switch and I felt the separation of the bombs from the aircraft.



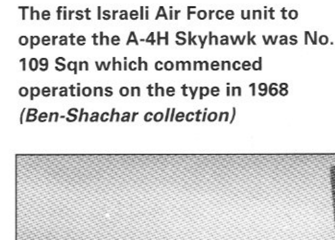
One of the most famous scenes of the Attrition War is this low flying Israeli Air Force reconnaissance Mirage on a mission to verify the success of an Israel Defence Force commando force to cut an electricity line deep into Egypt *(Nir collection)*



Israeli Air Force Mirage pilot Eitan Ben-Eliyahu claimed his first kill on 8 July 1969 in Mirage 33 *(IAF)*

'I did not even bank to observe my hits when I felt a bump in the back of the aircraft. Was I hit? The stick responded normally and the indicators did not reveal a thing. I crossed the Canal to the west and during the turn back my wingman said, "You have a fire in your left wing root". At that moment the hydraulic pressure warning lights came to life. Control was normal, the engine responded, the pressure gauge was on zero and my wingman kept telling me that the fire was spreading. The fire warning light then came on. With my heart beating faster than usual I considered for the first time the option of ejection. The altitude was convenient but not the swamp down below! A burning aircraft means an immediate ejection, this was how we were trained. But the fear of ejection over the swamp coupled with a report from my wingman that the fire was out resulted in the rejection of ejection thoughts.

'I set course to the nearest air base, El-Arish, climbed and examined the instruments. It looked like a hydraulic fluid reservoir had been hit and the fluid had caught fire but no other systems were damaged. To ensure radio communication I operated the emergency generator. I felt comfortable and reported to the controller. As we approached El-Arish I lowered the undercarriage, but the starboard wheel indicator did not show that the leg



The first Israeli Air Force unit to operate the A-4H Skyhawk was No. 109 Sqn which commenced operations on the type in 1968 *(Ben-Shachar collection)*





No. 116 Sqn was the only Israeli Air Force unit to operate the Mystère between 1968 and 1971 *(Livni collection)*

was locked so I asked my wingman to come closer and check. His observation was positive so I decided to continue to Hatzerim where proper maintenance services were available. I was bothered by the starboard wheel indicator so I did a touch-and-go and landed on my second approach. I immediately understood that I had no brakes and that staying on the runway was impossible. The aircraft slowly drifted to the right. I switched off the engine and the aircraft slid off the runway, rolling slowly along the ground until it stopped. I quickly opened the canopy, released myself and cleared out of the area. I waited but there was no rescue vehicle or fire engine in sight. So I returned to the aircraft and examined the damage – which seemed to be extensive – until finally a rescue vehicle arrived.'

The Israeli Air Force operation continued until 28 July and once again they managed to scale down hostilities. When Egyptian activity intensified the Israeli Air Force launched another campaign that lasted for six days. On the last day an Israeli A-4 was shot down by anti-aircraft fire and the pilot, squadron commander Nissim Ashkenazi, became a PoW. During this phase of operations the Israeli Air Force was used much like 'flying artillery', filling the gap between the capabilities of the Israel Defence Force artillery and the Egyptian artillery.

Another development in the use of air power came on 9 September 1969 and lasted until the end of the year. Israel decided to inflict such heavy losses that Egypt would not continue with the Attrition War and would seek a ceasefire. The campaign was limited to the immediate area to the west of the Suez Canal and down south on the west bank of the Gulf of Suez. The first phase was to achieve total air supremacy over that area by the destruction of the anti-aircraft positions, SAM sites and radar stations. By Israel achieving total air supremacy Egypt would be denied the option of following up the static Attrition War with an offensive across the Suez Canal, while the heavy losses that would be incurred on the Egyptian armed forces might drive the Egyptian leadership to end the war. In other words Israel was now using the attrition strategy to force Egypt to abandon the same strategy!

The Americanisation of the Israeli Air Force also resulted in the re-engining of the French Super Mystère with a US J58 turbojet *(Shapira collection)*





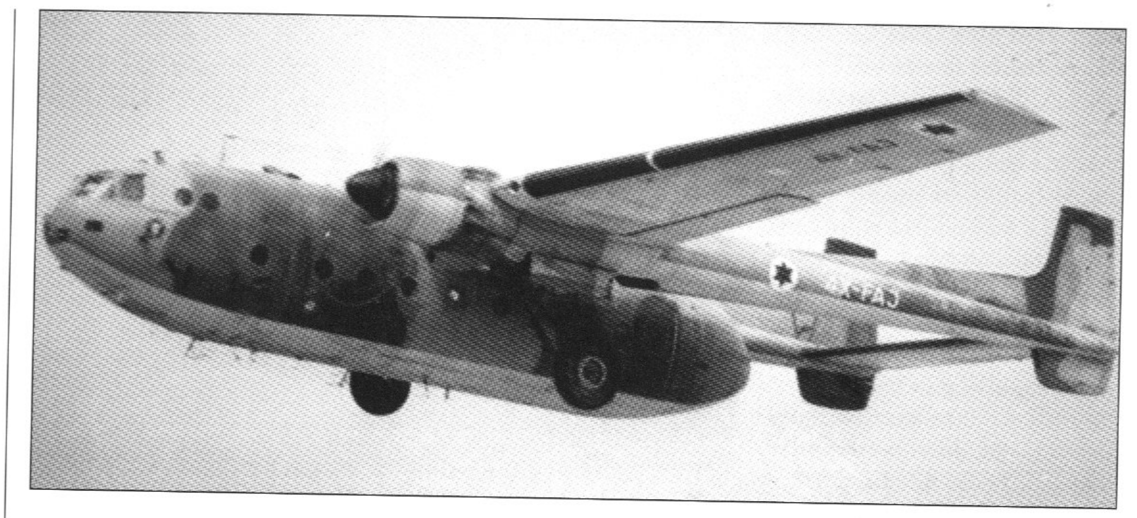
The first F-4Es arrived in Israel in September 1969 and were operational the next month. Deliveries continued throughout the Attrition War and beyond although used by the US Administration as a diplomatic tool to impose its will on Israel *(Peleg collection)*

While the Egyptian primary weapons of attrition were the artillery, the snipers and the commandos, Israel's primary weapon of attrition was the Israeli Air Force, although heliborne commando raids were used as well. On 9 September an Israel Defence Force armoured force (using Soviet main battle tanks and armoured fighting vehicles that had been captured in the Six Day War) was ferried from Sinai across the Gulf of Suez by the Israeli Navy. Landing near El Hafair the force advanced south some 30 miles along the coast road destroying anything it encountered en route. The Egyptians lost some 150 dead including a Soviet General, while the Israeli Air Force heavily supporting the Defence Force lost an A-4. Its pilot, squadron deputy commander Hagai Ronen, was posted missing in action. President Nasser suffered a heart attack, the Egyptian Chief of Staff was dismissed.

The Egyptian Air Force attempted to retaliate on 11 September with a massive air attack on Israel Defence Force installations in Sinai. A single

The arrival of the first Sikorsky S-65 helicopters in late 1969 enhanced the heavy-lift capability of the Israeli Air Force rotary wing fleet *(IAF)*





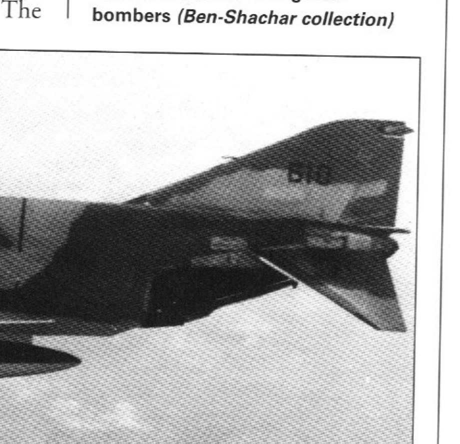
Israeli Air Force Nord Noratlas transports were used as nocturnal bombers at least twice during 1969 ***(IAF)***

Egyptian MiG-17 was shot down by 20-mm and 40-mm anti-aircraft fire, while in air combats an Israeli Mirage was shot down as were five Egyptian MiG-21s and two Su-7s. On that day, Israeli Air Force Mirage pilot Yehuda Koren claimed his fourth kill. He later recalled:

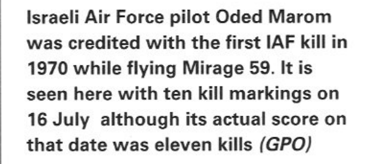
'I was scrambled to intercept attacking Su-7s but the controller gave me an altitude of 20,000ft. (Giora) Epstein was also involved and he corrected the controller. "You are going after the MiGs at high altitude, I am going after the Sukhois at low altitude". Avsha (Avshalom) Friedman was my wingman and we entered a combat versus six MiG-21s. At one point a pair reversed so I stayed with a four-ship formation. Avsha went after the pair and very quickly shot one of them down. I was in a left turn and the moment one of them blew up the rest started to escape. The aircraft that I was after levelled its wings so I launched a Shafrir 2. Then Avsha shouted, "break". I broke hard and I was sure that the missile missed. The aircraft on my tail passed me so I reversed and saw an aircraft explode. It was my missile. The combat was pretty tough. The MiGs fired at us from any angle; their chances to score were slim but they shot anyway.'

The Israeli Air Force offensive was tactically successful. The Egyptian air defence assets were destroyed, air superiority was achieved and many Egyptian targets along the Suez Canal were attacked on a daily basis. The

The deep penetration missions exerted the most out of the new Israeli Air Force F-4E fighter-bombers ***(Ben-Shachar collection)***







Israeli Air Force pilot Oded Marom was credited with the first IAF kill in 1970 while flying Mirage 59. It is seen here with ten kill markings on 16 July although its actual score on that date was eleven kills ***(GPO)***

new Israeli Air Force multi-role top fighter, the F-4E Phantom, made its first operational attack mission on 22 October when an SA-2 battery at Abu Sueir was attacked, while on 4 November two F-4s performed a low-level supersonic boom over Cairo to remind the Egyptian citizens and leadership that the Israeli Air Force possessed total air superiority.

Despite the tactical success of the Israeli Air Force offensive, the Israeli strategic objective of forcing Egypt to cease hostilities along the Suez Canal was not achieved. Although Egypt was certainly suffering from the new Israeli attrition campaign, it was not yet willing to succumb to Israeli pressure. The activity of the Egyptian artillery was scaled down, but instead the Egytian army used light arms and mortars so that the number of Israel Defence Force casualties along the Suez Canal was not reduced. Even the achievement of air superiority was not clear cut and the Egyptian Air Defence Force continued to fight the Israeli Air Force with attacks on SA-2 batteries continuing well into December 1969.

Nevertheless Israeli pressure was starting to yield results. A major success came on the evening of 26 December when three Super Frelons landed Israeli troops close to an Egyptian P-12 radar station. The troops captured the site, and two newly arrived Sikorsky S-65 helicopters came in and lifted the two component containers across the Gulf of Suez to Sinai. The general impression was that with a little bit of additional military pressure Egypt would come to the conclusion that continued attrition was no longer feasible. Up until the end of 1969 Israel used its heliborne forces to hit high-value military targets deep into Egypt but this special operations tactic was not well-suited to sustained operations and continued pressure. The Israeli Air Force even used its Noratlas transports to bomb bridges deep into Egypt, but while the first such mission on

An Egyptian SA-2 system that had been captured during the Six Day War. It was still a viable and deadly weapon in 1970 *(Niv collection)*

29 April 1969 had been a relative success, the last mission on 24 October almost ended in disaster when two of the transports were damaged by anti-aircraft fire. By the end of 1969 the Israeli Air Force finally had the weapon with which it could sustain a continued campaign to hit pinpoint targets deep into Egypt: the F-4 fighter-bomber.

SOVIET INTERVENTION

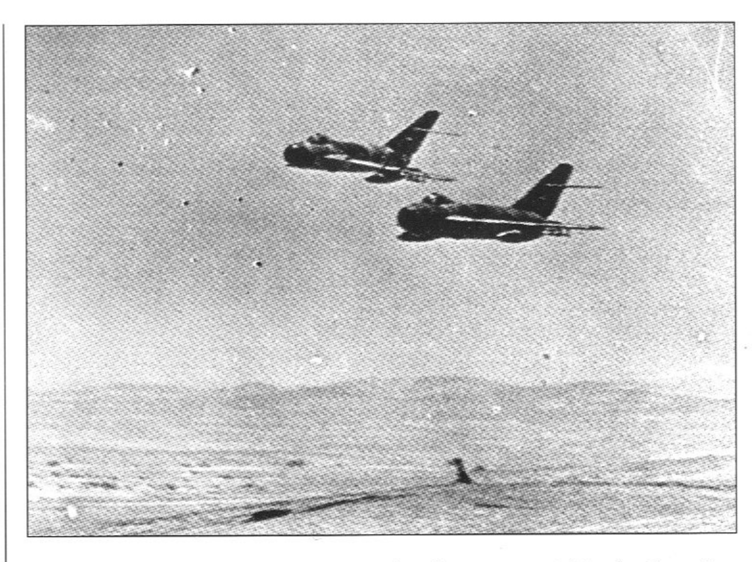
The first Israeli Air Force deep penetration attack mission was launched on 7 January 1970 when three targets were attacked: a commando headquarters at Inchas, a SAM training and logistics site at Dahashur and the Tel El-Kabir barracks. Additional targets attacked during January included a logistics site, an ammunition factory, a divisional headquarters, an engineering workshop, an armoured corps headquarters and several barracks and training camps. The other Israeli Air Force components were not idle either. The offensive campaign along the Suez Canal continued. An Egyptian MiG-21 was shot down by a Mirage pilot on 4 January, and heliborne forces raided Shadowan Island in the Gulf of Suez on 22 January and captured it for 24 hours. The Israeli Air Force supported the Defence Force on Shadowan Island and A-4s even sank two Egyptian torpedo boats. But the operation turned out to be a Trojan Horse when a truck loaded with mines captured at Shadowan exploded as it was being unloaded from a landing craft at Eilat port. More than forty were killed and more than sixty injured.

The Attrition War was at a crossroads and Israeli pressure forced Egypt to reassess the situation, but the outcome was not the decision for which Israel hoped. Egypt was not yet willing to abandon its initiative and end hostilities. Instead, President Nasser made a two day visit to Moscow on 24-25 January 1970 which had a dramatic effect on the conflict. Egypt had found the ultimate answer to the Israeli Air Force deep penetration strikes: direct Soviet intervention in the war.



Although used primarily in the Operational Training Unit role by the Israeli Air Force No. 113 Sqn, the Ouragan also flew operationally throughout the Attrition War mostly on the Jordanian front since the Egyptian integrated air defence network was too dangerous to the veteran French fighter *(Peleg collection)*

The Soviet presence prompted the Egyptian Air Force to increase its offensive activity. The low flying Egyptian MiG-17s and Su-7s posed a major challenge to Israeli Air Force interceptors *(Nicolle collection)*



Some 1,500 Soviet advisors were already present within the Egyptian armed forces from regiment sized units upwards, and several had been killed in the war, but in early 1970 a complete Soviet Air Defence Division, including an integral MiG-21-equipped interception air brigade, began its deployment to Egypt. Equipped with anti-aircraft artillery, radar stations, command and control facilities and the latest versions of the SA-2 and the SA-3 SAM systems (the latter never before operated in the Middle East), the Soviet Air Defence Divison assumed responsibility for the defence of Alexandria, Cairo and the Aswan Dam thus freeing the Eyptian Air Defence Force to engage the Israeli Air Force in the battle that was still waging for air superiority west of the Suez Canal.

While the Soviet Air Defence Division was being deployed, Israeli Air Force deep penetration attacks took place throughout February and March. At first it looked as if the new Israeli Air Force offensive tactic was bringing positive results, but Israel was not yet aware of the impending confrontation with the Soviets. A major set-back in the Israeli Air Force campaign came on 12 February when a civilian steel plant at Abu Za'abal was bombed in error instead of a SAM storage site at Dahashur. Some 70 Egyptian workers were killed and another 100 were injured and, although Israel warned Egypt about the presence of a delayed-fuse bomb, it was a major propaganda coup for Egypt, as well as being a tragic incident. No less tragic was another error in a deep penetration attack mission on 8 April 1970 when a school was bombed instead of the assigned military target at El Tsalchiya, in which 47 children and staff were killed and about 30 injured.

By late February the deployment of the Soviet Air Defence Division to Egypt was noticed by Israel. The Israeli Air Force commander, Maj Gen Mordechai Hod, advised the Israel Defence Force Chief of Staff to attack a single Soviet SAM battery as a warning sign, but his proposal was not accepted. Instead, during March the Israeli Air Force started to avoid Soviet areas of responsibility in order to avoid a direct confrontation. Beginning on 1 March they concentrated mainly on efforts to preserve Israel's air superiority over the west bank of the Suez Canal, and special attention was given to attacking many T-shaped trenches which the



Israeli Air Force No. 119 Sqn commander Amos Amir shot down an Egyptian Il-28 at night on 25 April 1970 in Mirage 58, one of the greatest IAF MiG-killers, seen here carrying eight kill markings in May 1973 *(GPO)*

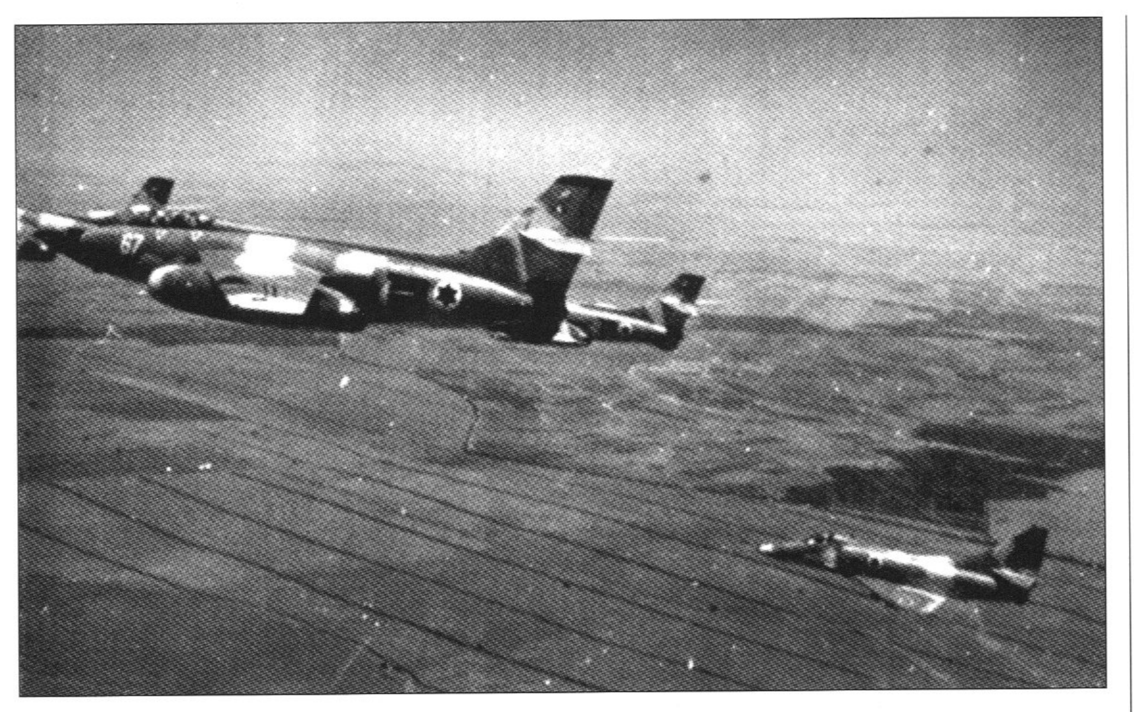
Egyptians were preparing. Unknown to the Israeli Air Force these were the first signs of the rolling forward of the Soviet Air Defence Division; the trenches were being prepared for the new SA-3 system.

The Israeli Air Force deep penetration strikes were discontinued on 13 April, and five days later Soviet flown fighters almost intercepted two Israeli F-4s on a reconnaissance mission (interestingly Israel received its first RF-4E reconnaissance aircraft only in 1971). The fact that the units involved were Soviet was easily confirmed by monitoring the radio/telephone communication since the Soviet pilots and their command and control facilities spoke Russian.

The presence of the Soviet Air Defence Division also gave more confidence to the Egyptians. Egypt increased its activity level both with offensive strikes on Israel Defence Force targets in Sinai and with attempts to intercept attacking Israeli aircraft. On 25 April two Egyptian Il-28s which had penetrated deep into Sinai under the cover of darkness were both shot down while returning home from their bombing missions. One was hit by an F-4 crew and the other by a Mirage pilot, Amos Amir, who flew



The improved Super Mystère received two additional hardpoints and became operational during 1970 *(Ron collection)*



Both the A-4 and the Vautour were extensively used on the Egyptian front *(Peleg collection)*

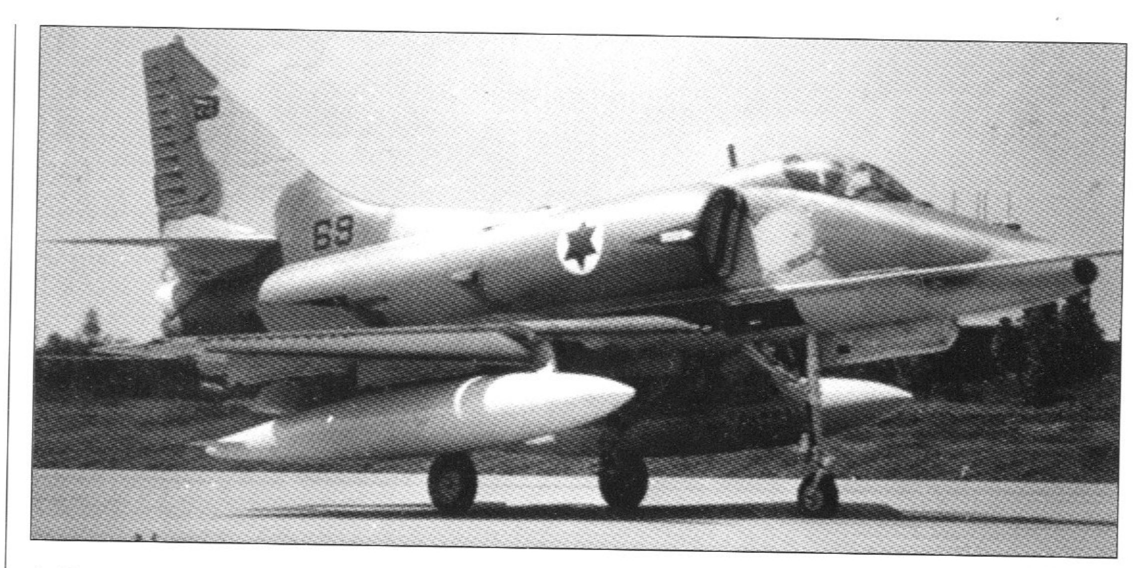
dressed in T-shirt, shorts and sandals since he was sure that the F-4s with their superior all-weather interception capability would do the job and that he would not be scrambled.

Two Egyptian Su-7s were shot down by Israeli Mirages on 28 April during an attack mission, but during May the Israeli Air Force was starting to succumb to the determination of the Egyptians to roll forward the air defence network and deprive Israeli of its air superiority over the west bank of the Suez Canal. Although Israeli fighters were still successful in the air-to-air arena, the real war was by then between the Israeli attack aircraft and the Egyptian Air Defence Force supported in the rear by the Soviet Air Defence Division.

Israel Baharav, one of the most successful Israeli aces, recalled an air combat versus Egyptian MiG-21s on 10 July 1970:

'I was a leader but when a team was organised I flew as Number 4. We came as a team to shoot down MiGs. (Iftach) Spector was the leader; the senior deputy commander, Menachem Sharon, was Number 3; (Moshe) Hertz was Number 2 and I was Number 4. We joined up with Sa'ars and came in with them during their bombing run... When the MiGs appeared we sent the Sa'ars home...

'I frustrated the Mig-21 attack but they were so fast that they pulled up and I could not reach them. They then tried to dive and disengage. I tried to follow them but I could not get them. Then they pulled up once again and dived. They did it three times. I simply could not catch them, not in the pull up and not during the dive. The third time they entered a steep dive, 60° or so, a crazy supersonic dive, I launched a missile at their Number 1. They flew very close to each other. As the missile exploded their Number 1 rolled over to a split S, 60°, 10,000ft, 1.4 Mach. His wingman rolled after him and I started to roll but I realised that I would not be able to recover. It all happened over Lake Manzala. I decided that it was too



A third Israeli Air Force A-4 squadron was formed in 1969 *(IAF)*

dangerous so I rolled back. I could see their Number 2 also roll back but I could no longer see their Number 1. I recovered with my G meter at the maximum, 10G, and at 2,000ft. I lost my generator and alternator and I had to revive the systems. Then I saw the Number 2 MiG recover below me and his leader crash.

'I then started a long chase after the Number 2 MiG with Sharon flying behind me all the time. There were low clouds over the Nile Delta and the MiG flew towards his home at Mansura. I did not want him to disappear into the clouds but my gunsight was not close enough and he started to head for the clouds. They were very low, maybe only 200-300ft above the ground. I lost him so I just fired into the cloud and descended below it with Menachem Sharon, and there was the MiG, burning, with the pilot ejecting close to his home at Mansura. I had fired into the cloud, an extra-ordinary kill!'

On a clear day the launch of an SA-2 can easily be obseved *(IAF)*

Yet all the air-to-air successes could not offset the fact that the Israeli Air Force was losing the air superiority over the west bank of the Suez Canal. Two Israeli F-4s were shot down by SA-2s on the late afternoon hours of 30 June 1970 with three air crew becoming PoWs, while the fourth, navigator Yair David, was retrieved under the cover of darkness by a Sikorsky S-65 helicopter in a daring rescue mission. The Israeli Air Force continued to attack the air defence nework, but at noon on 5 July a third F-4 was shot down by an SA-2 with both air crew becoming PoWs. The Israel Defence Force Chief of Staff, Major General Chaim Bar-Lev, announced the next day that the Soviets had planned, organised and were operating an air defence network in the central zone of the west bank of the Suez Canal including between ten and fifteen SA-2 batteries and at least two SA-3 batteries. The array was between 15 to 35 miles to the west of the Canal with overlapping coverage, anti-aircraft artillery defence and salvo launchers. The Israeli Air Force claimed that it had destroyed five of the batteries and damaged another two but this was abviously not enough.



The broken nose section of Avihu Ben-Nun's F-4E at Refidim in July 1970 *(IAF)*

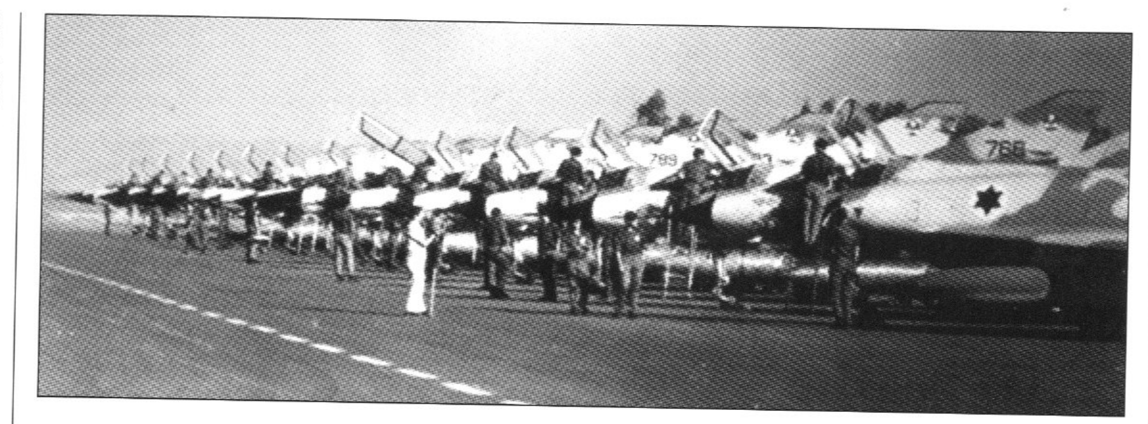
The blunt Soviet intervention put the US under pressure to respond to Israeli requests for the immediate supply of electronic warfare counter-measures to fight the new threat. Electronic Counter Measure (ECM) pods were rushed to Israel and were first used on 18 July. But the Israeli Air Force was shocked. Flying straight and level at medium altitude to give the new magic ECM pods the best operating conditions, the two F-4 squadron commanders were both hit by SAMs. Samuel Hetz was killed and his navigator Menachem Eini became a PoW. Their F-4 was the first victim of the SA-3 in the Middle East. Avihu Ben-Nun, the other F-4 squadron commander, managed to nurse his badly damaged aircraft to an emergency landing at Refidim in Sinai.

The hopes that the new ECM pods would do the job were shattered, and although the war lasted for another three weeks it was clear from that moment that the Israeli Air Force had no operational answer to the new threat from the ground by massive numbers of overlapping SAM sites defended by anti-aircraft artillery and backed by an extensive early warning, command and control network.

Frustrated by its inability to secure air superiority over the west bank of the Suez Canal, the Israeli Air Force looked for some sort of success. The

Israeli Air Force No. 101 Sqn commander Iftach Spector flew Mirage 52 to engage Soviet pilots on 30 July 1970 *(Ron collection)*





Israeli Air Force No. 119 Sqn Mirages line up for the last time in October 1970. The squadron was credited with 24.5 kills during that year *(Nir collection)*

opportunity arose in July 1970 when a Soviet flown MiG-21 damaged an Israeli A-4 with an AA-2 Atoll AAM. An ambush was organised in the area of operations of the Soviet interceptors in order to deter them from any further aggression. The ambush included three four-ship formations of Mirages and a single four-ship formation of F-4s with the finest Israeli Air Force fighter pilots, a team of MiG-killers. The plan was quite simple: four Mirages were to fly the pattern of a high-altitude reconnaissance mission over the area where Soviet flown MiG-21s were active. Each pair of armed Mirages flew very close to each other to simulate on the radar screen a typical reconnaissance mission by two unarmed Mirages. To complete the picture, the usual back up of such a mission, two four-ship formations on combat air patrol in the air plus another four-ship formation on quick reaction alert at the nearest air base, were present.

The Soviets fell into the trap, scrambling four four-ship formations in succession to intercept the Israeli 'reconnaissance aircraft' that in fact intercepted the interceptors. Flying in the 'bait' formation, Asher Snir shot down a MiG-21 although he was immediately damaged by an AA-2 which hit his nozzle but did not explode, and the damaged Mirage returned safely to its base. Number three in the 'bait' formation was Avraham Salmon who was credited with one-and-a-half kills. He had to share a kill with Iftach Spector who was scrambled from Refidim to replace two of the Mirages on combat air patrol that had to return to base when one developed a mechanical problem. Another two Soviet flown MiG-21s were shot down by the F-4s: Avihu Ben-Nun and his navigator Shaul Levy shot down a MiG-21 with an AIM-7 Sparrow AAM, while Aviem Sela and his navigator Reuven Reshef shot down a MiG-21 with an AIM-9 Sidewinder AAM.

The air combat versus the Soviet flown MiG-21s was the highlight of the Attrition War for the Israeli Air Force. It has also been reported that the Egyptian pilots were also elated by the Soviet defeat since up until then they had had to live with arrogant Soviet criticism of their own performance and poor achievements in air combats against the Israeli Air Force. Nevertheless this morale boosting achievement did not change the course of the war. A fifth Israeli F-4 was lost on 3 August to an SA-3, while another F-4 that was damaged by an SA-3 returned with an injured pilot who flew the aircraft with the help of his navigator. Four days later a ceasefire came into effect, the result of a US diplomatic initiative that viewed a ceasefire as vital to the stability of the region in light of the direct Soviet intervention in the conflict.

President Nasser announced his agreement to the US initiative on 23



The Israeli Air Force introduced in-flight refuelling capability in the early 1970s in the shape of locally modified Boeing KC-97s *(IAF)*



Reconnaissance flights were the trigger of many air combats, this is an Israeli Air Force RF-4E *(Ronen collection)*



Deliveries of the improved A-4N Skyhawk II to the Israeli Air Force began in 1972 *(IAF)*

July thus paving the way to the end of the Attrition War. His concession was viewed at the time as an admission of his failure to achieve the original objects of his aggression. This was only partially true, as was the belief that Israel had won the Attrition War since its objects were fully achieved: a ceasefire without withdrawing even an inch from the banks of the Suez Canal. The truth was somewhere in between. Nasser probably understood that his aggression had failed, yet he was waiting for a major military achievement before he could have agreed to a ceasefire. This achievement came in the early summer of 1970 when the Soviet backed Egyptian Air Defence Force won air superiority over the west bank of the Suez Canal from the hard-pressed and exhausted Israeli Air Force.

As part of the ceasefire agreement Egypt agreed to freeze the 7 August 1970 status of its air defence network under the supervision of US Air Force U-2 reconnaissance flights, but when the results of an Israeli Mirage reconnaissance flight on 9 August 1970 by Yitzhak Nir were analysed it became apparent that Egypt had rolled forward its air defence network until it covered not only the whole west bank of the Suez Canal but also up to six miles into Israeli-held Sinai to the east of the Canal. Israel's diplomatic protests were to no avail and military action was out of the question. The Israeli Air Force had no answer to the ground based air superiority challenge, and this was to become crystal clear when the Yom Kippur War broke out on 6 October 1973.

Except for the Mirage the Super Mystère was the only French fighter still in Israeli Air Force service at the time of the Yom Kippur War, although by then it had been modified considerably with a US turbojet and was known as the Sa'ar *(Peleg collection)*

A THREE YEAR PAUSE

Although Israel was truly surprised on 6 October 1973 when both Egypt and Syria launched a simultanous offensive, the new Middle East war was really the direct outcome of the inability of the diplomats not only to solve the underlying dispute but also their failure even to reach any kind of minor progress. Israel was still focused on the preservation of the Status Quo and had come to the wrong conclusion that the Arabs had no real military option if they were to gain any diplomatic achievements. Moreover Israeli intelligence was mistakenly convinced that no Arab offensive was feasible before the Egyptian Air Force equipped with high quality long-range attack aircraft.

Though the ceasefire had been in effect since 7 August 1970, the Middle East was neither quiet nor peaceful and aerial activity was not an exception. Reconnaissance flights were the trigger for many incidents, but for a year both sides escaped casualties until an Egyptian Su-7 was shot down by anti-aircraft fire during a low level recconnaissance mission on 11 September 1971. Six days later the Egyptians retaliated with a well-planned SAM ambush when an SA-2 shot down an Israeli Stratocruiser aircraft flying a routine high altitude reconnaissance mission along the Suez Canal some 15 miles inside Israeli territory.

An escalation in the mutual reconnaissance effort came on 10 October



Israeli Air Force No. 117 Sqn pilot Yuval Ne'eman being greeted after shooting down his first MiG on 21 November 1971

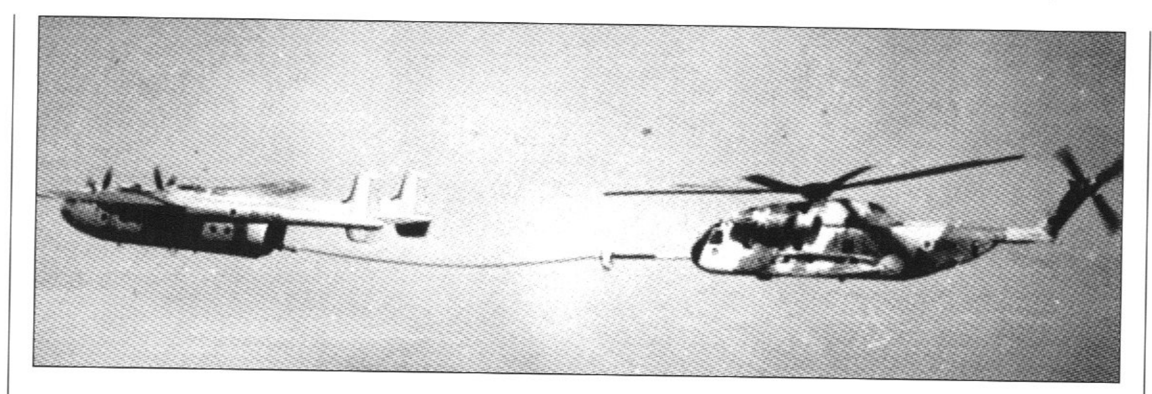
1971 when the Soviet detachment of MiG-25s made its first incursion into Israeli air space. Additional missions followed. On 13 June two RF-4s were intercepted by Egyptian MiG-21s at the end of a reconnaissance mission as they made for Mansura air base. In an air combat between the intercepting Egyptian MiG-21s and the escorting Israeli Mirages and F-4s, the F-4s shot down two Egyptian MiG-21s. Israel Baharav, the leader of the Mirage section, later recalled:

'We had to meet the recce aircraft – which could not manoeuvre – as it exited (the Nile Delta) and take a position right behind it so that the MiGs would have to engage us, ten miles behind.

'We were a pair of F-4s and a pair of Shahaks which I led. We flew very low over the Mediterranean and pulled up in position near the exit point. A lot of MiGs were scrambled from all over the Nile Delta (air bases) to try and cut it off. Since the recce aircraft was higher and faster, we saw the MiGs trying to block its exit but each one of them failed. Yet there was one four-ship formation, pairs in line astern, which managed to track its path pretty well, got on its tail and started to close the distance. Our briefing was crystal clear: do not leave the recce aircraft, it cannot fight, you are

The IAI Nesher that entered service in 1971 was basically a locally manufactured Mirage 5 *(IAF)*





An Israeli Air Force Nord Noratlas refuels a Sikorsky S-65 in flight *(Peleg collection)*

his stone wall. However there is a limit to anything. The F-4s were in front of us and the MiGs were one-and-half mile behind us!

'At four miles I asked the leader in the F-4 to engage but he asked the ground controller and got no answer. At three miles, no problem, at two miles I asked. At one-and-a-half miles I decided that I could not wait any longer so I took them on.

'I later learnt that during those critical moments there was an electricity failure at the ground control station and they lost their communication system. They did not hear us so they could not order us to engage. The reason why I did not shoot down the MiGs was a matter of gunnery. My guns were inadequate and the F-4s got the MiGs, although in fact I set them up nicely. The moment I turned into them the MiGs also turned and it was a very convenient situation for the F-4s.'

YET MORE SKIRMISHES

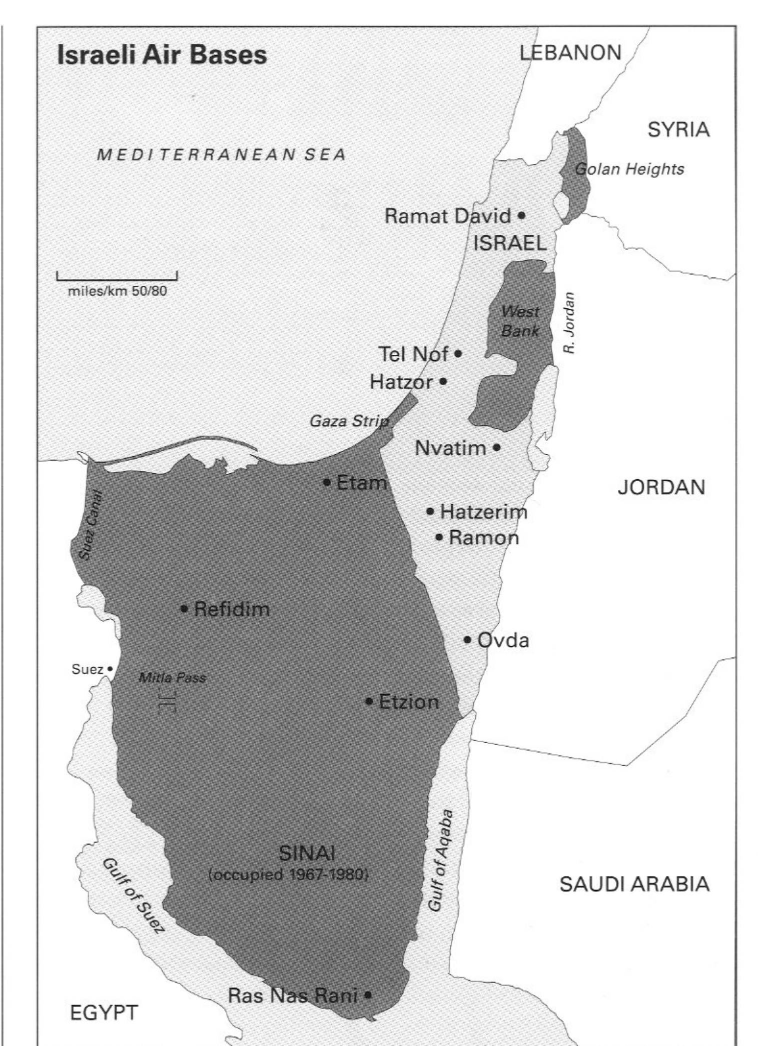
On 8 September 1972 the Israeli Air Force launched a massive attack on eleven PLO installations in both Lebanon and Syria in retaliation for the massacre of Israeli sportsmen at the Munich Olympic Games. A small scale Syrian Air Force retaliatory action followed the next day, but three of the four Su-7s that penetrated Israeli air space were shot down, two by Israeli Mirages and the third by an Israeli F-4.

The unrest along both the Lebanese and the Syrian borders continued well into 1973. On 9 November two Syrian MiG-21s were shot down by Israeli Mirages, while less than a fortnight later, on 21 November, another large scale skirmish erupted on the Syrian border which also involved extensive aerial action. In two separate air combats six Syrian MiG-21s were shot down. Interestingly enough it was the first kill for all of the six Israeli pilots.

A single Syrian MiG-21 was shot down on 2 January 1973 and another crashed in Lebanon as a result of a spin. On 8 January the Israeli Air Force once again attacked Syrian targets and six Syrian MiG-21s were shot down including two shot down by IAI Neshers, the first kills for the Israeli-produced Mirage 5 version which had entered Israeli Air Force service in 1971.



The Rafael Shafrir 2 AAM seen on this Mirage was unveiled to the public on 27 March 1973 although it had been in operational service since 1969 *(GPO)*



The series of successful air combats by the Israeli Air Force came to an abrupt and tragic end on 21 February when a Libyan Boeing 727 airliner on a routine Tripoli- Benghazi-Cairo flight strayed into Sinai, possibly due to a severe sandstorm. Two intercepting F-4s ordered the 727 pilots to follow them to Refidim air base in Sinai but the airliner crew, probably realising their error, turned back west. The F-4s fired warning shots, then aimed at the wingtip and finally at the wing root. 105 people were killed and only seven survived the crash. This tragic action may have shocked the decision makers, and for about six months the level of hostilities was scaled down.

In June 1973 it was reported that Libyan Mirages were operating from Egyptian air bases. It was just part of an Egyptian-led effort to concentrate Arab air power in Egypt and Syria. An Iraqi Hunter wing was deployed to Egypt while arrangements for the deployment of a single Iraqi MiG-17 squadron, three MiG-21 squadrons and two Su-7 squadrons to Syria were made. Algeria deployed three squadrons to Egypt, one each of MiG-17, MiG-21 and Su-7, and a single MiG-21 squadron to Syria. Libya deployed two Mirage squadrons to Egypt. Morocco, however, failed to deploy the promised F-5 squadron since its pilots had been arrested following an attempted coup!

Israel was unaware that this massive build-up of air power in Egypt and Syria was a significant part of the Arab attack plan. The Israeli Air Force was preparing itself to achieve air superiority by the destruction of the enemy's air defence arrays in a highly detailed and well concentrated attack effort. It had also been promised by the Israel Defence Force that in any future conflict the Air Force would be given two days to fight for air superiority during which time the IDF ground forces would not seek any air support.

The self confidence of the Israeli Air Force in retrospect, despite all the warning signs, was even boosted on 13 September 1973 when, in a series of air combats following an Israeli reconnaissance mission over Syria, Israeli fighters shot down twelve Syrian MiG-21s for the loss of a single Mirage. It was three weeks to Yom Kippur.

1973: THE YOM KIPPUR WAR

Egypt and Syria attacked Israel at noon on 6 October 1973. It was Yom Kippur, the Jewish Day of Atonement, during which Israel was at a standstill: no radio or TV broadcasts, no traffic, no eating, no drinking, nothing. There were already ominous signs of war even for the self-confident Israel Defence Force intelligence officers and decision makers, but just before noon the Israeli government rejected the IDF suggestion to launch a pre-emptive strike. Israel was to absorb the first blow with its small regular army thinly spread along the Golan Heights and the Suez Canal. Under normal circumstances the Israeli Air Force was to support outnumbered Israeli regular forces until the arrival of mobilised reserves, but this was not expected within 24 hours at best for the first units. And what about the promised two days for the air superiority battle?

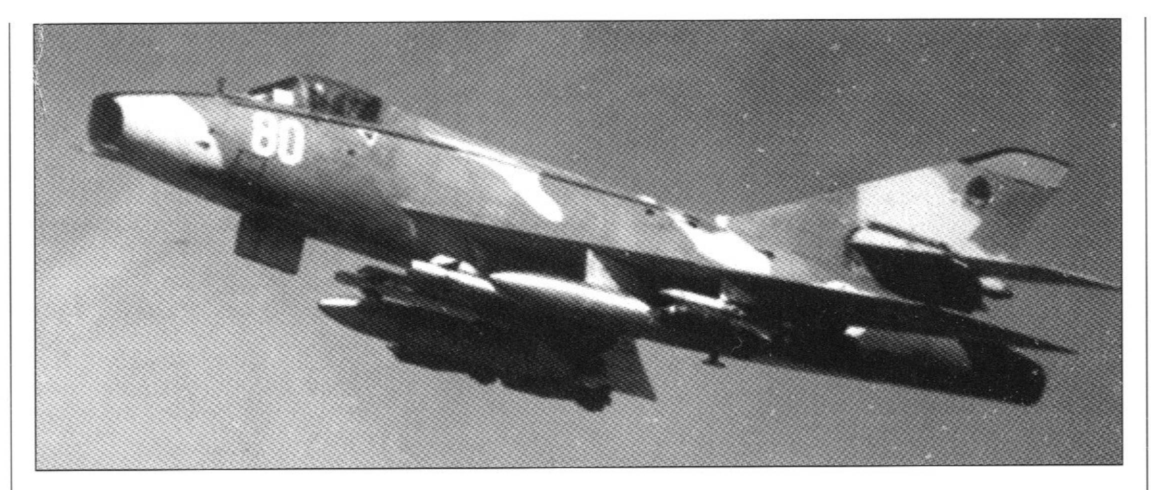
At exactly 1400 on 6 October Israeli Air Force fighters were scrambled from their bases. Here and there they achieved local success: shooting down seven attacking Egyptian fighters for no losses over Ophir air base; shooting down an AS-5 ASM launched by an Egyptian Tu-16 towards Tel Aviv; shooting down most of the Egyptian Su-7s that attacked the major Israel Defence Force command and control centre at Om Hashiba – including the one flown by Atef Sadat the half-brother of the Egyptian President Anwar Sadat. But overall the picture was gloomy. Shlomo Shapira, the commander of the Israeli Super Mystère squadron, recalled his first mission at noon on 6 October:

'We were scrambled to the north and got as far as Netanya. Then we received a change of mission to rush (south) to the (Suez) Canal. So we rushed to the Canal and got as far as the area of Gaza, and then the controller once again changed our direction. He frantically ordered us north to Mount Hermon. On our way it was explained to us that (Syrian) forces were approaching the (Israeli) strongpoint from the north. There was a tank about 100-200m to the west of the strongpoint which was ours but it had possibly been abandoned by its crew. Our guys were inside the bunker and our target was to attack enemy forces. Everything out there was the enemy except for the tank. We mainly attacked targets to the north of the strongpoint, while there was a fair mess because the Syrians were firing quite a lot of mortars. There was also a SAM threat. We tried to enter from the rear, pull up at the last moment and get out immediately. We knew that if a SAM were to be launched it would be difficult to detect because of the clouds. My four-ship formation returned safely and I think that we did some damage, but we did not save the strongpoint.'

Early next morning the Israeli Air Force launched its planned air cam-

Israeli Air Force ground crews attend a No. 144 Sqn Nesher during the Yom Kippur War. The squadron engaged Egyptian Air Force Su-7s over Om Hashiba on 6 October 1973 *(IAF)*

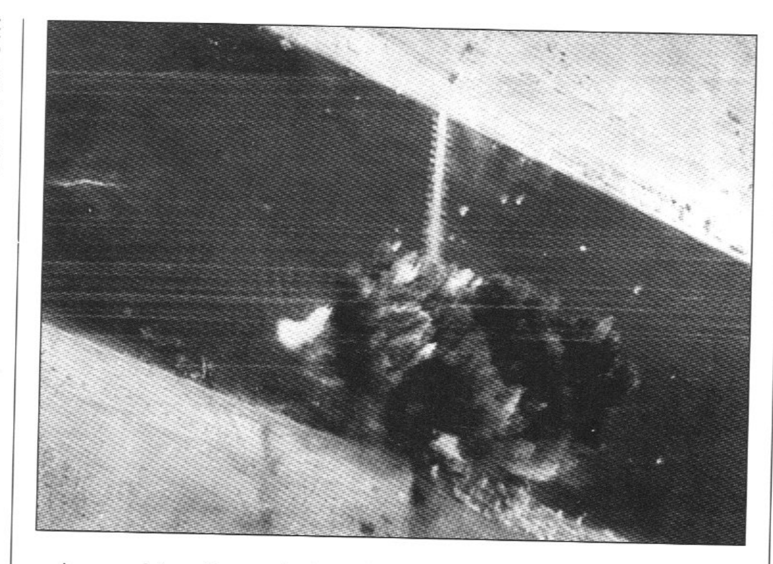




An Israeli Air Force Sa'ar takes off during the Yom Kippur War *(IAF)*

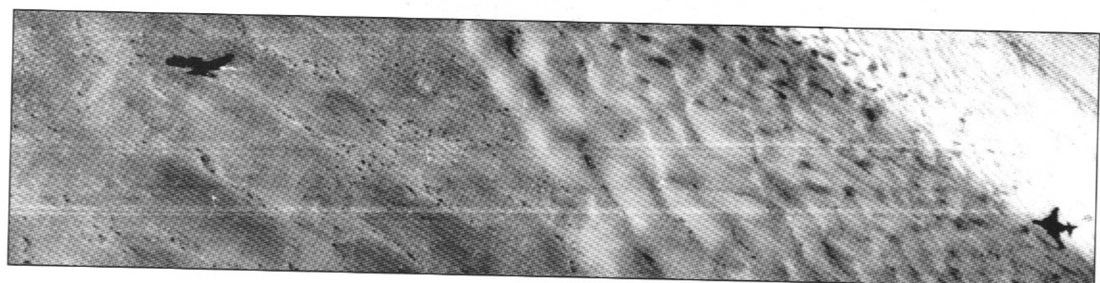
The Egyptian Air Force made extensive use of its Mi-8 helicopters to insert commandos into Sinai. One example was captured by the Israelis almost intact, except for a broken nosewheel, and was flown by the Israeli Air Force *(IAF)*




Attacking the Egyptian bridges on the Suez Canal was one of the top priority missions of the Israeli Air Force *(IAF)*

paign to achieve air superiority. Obviously the operation was far removed from the actual conduct of the war. While the greatest threat to Israel was in the north where Syrian armour had captured a significant portion of the Golan Heights, only some twenty miles wide, and threatened to advance past the former international border into Israel itself, the Israeli Air Force operation was launched against Egypt. The Egyptian army crossed the Suez Canal but advanced no more than ten miles in order to stay well within the protective shield of their Air Defence Force network. There were still more than 100 miles to cover before reaching the international border. The ill-fated decision to launch the attack on the Egyptian front rather than on the Syrian front was to cost the Israeli Air Force dearly. The first wave attacked the anti-aircraft positions with cluster bombs, while the next waves were planned to attack the SAM batteries. But when the aircrews returned from the first wave they learned that the operation had been called off and that the next wave would be aimed at the Syrian air defence network. Since it was just improvised, the second wave was disastrous. The Israeli Air Force lost five of its precious F-4s and did not knock out of action even one single Syrian SAM battery.


Israeli Air Force No. 101 Sqn pilot Dan Sever returns to the hardened aircraft shelter (HAS) at Refidim in Nesher 17 after shooting down an Egyptian Air Force Su-7 on 8 October 1973


An Israeli F-4 in pursuit of an Egyptian MiG-17 over the dunes of Sinai on 8 October 1973




Israeli Air Force No. 144 Sqn commander during the Yom Kippur War Menachem Sharon climbs out of the cockpit of his Nesher inside an HAS after a successful mission *(Sharon collection)*

The Israeli Air Force abandoned its effort to achieve air superiority, and for the time being the SAM won over the aircraft, though the Israelis continued to fly battlefield air interdiction and close air support missions well into the SAM defended areas. On 8 October a major Israel Defence Force counter-offensive in Sinai failed, and until 14 October the focus turned to the Syrian front while the Egyptian front remained relatively static. At the Golan Heights more than two Israeli Defence Force reserve divisions augmented the two regular armoured brigades, one of which had been virtualy wiped out. The Syrians were slowly pushed back at first to the initial lines of attack and then even beyond – well into Syria. By 12 October Damascus was within Israeli artillery range and the threat to northern Israel had been removed. The next day an Iraqi armoured brigade, the vanguard of an Iraqi expeditionary force, was destroyed and although fighting continued the Syrian front was relatively quiet for the next ten days or so while the focus of attention turned to Sinai.


Israeli Air Force No. 101 Sqn commander 'Avi' Lanir talks to his ground crews during the war. He was shot down on 13 October 1973 *(IAF)*

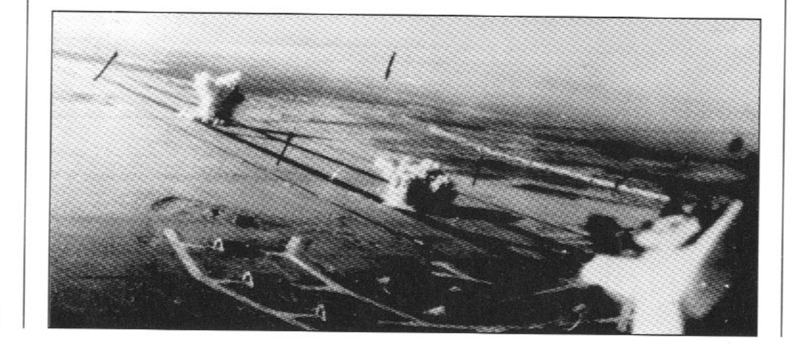


Shortly before the Yom Kippur War the Israeli Air Force A-4E and A-4H attack aircraft were fitted with a 'hump' that offered the additional space required by an improved avionics package *(Dagan collection)*

VICTORY AFTER ALL

Air superiority over the Suez Canal during the Yom Kippur War was primarily achieved by ground based units. At first it was the turn of the Egyptian Air Defence Force to win air superiority, but on 14 October the Egyptian army finally launched an armoured offensive all along the Suez Canal. Three Israeli armoured divisions destroyed about 200 of the 1,000 attacking Egyptian main battle tanks at the cost of ten Israeli tanks. It was an action that was to have a significant impact on the events, and perhaps this great armoured battle was the true turning point in the fighting on the Egyptian front. The next day the Israelis launched a classic indirect approach offensive, cutting in between the Egyptian 2nd Army in the north and the Egyptian 3rd Army in the south, crossing the Suez Canal to the west and creating a major bridgehead. Israeli ground forces advanced to the west and to the south, a manoeuvre that brought them to within 65 miles of Cairo and resulted in the Egyptian 3rd Army being cut off. At the same time Israeli ground forces destroyed the Egyptian rear units, including those of the Air Defence Force. Israeli armour won the air superiority battle and offered the Israeli Air Force the freedom of operation it had long been seeking. Although portions of the Egyptian Air Defence Force were still intact it was by then a collection of scattered defence systems rather than a coherent network, thus allowing the Israeli Air Force to attack and finally even to knock out SAM batteries.

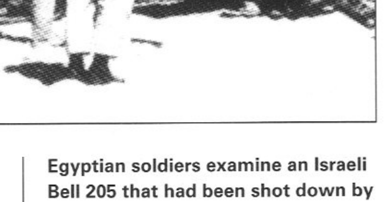
It was at this stage, when the Egyptian Air Defence Force collapsed under the combined pressure of Israeli armoured forces and attack aircraft that the Egyptian Air Force was called upon for support. Up until then the Egyptian Air Force was used in a controlled manner mainly on limited offensive operations flying through 'safe' corridors within the air space defended by the Air Defence Force. From about 18 October until the end of the war on 24 October, intensive air action by both the Egyptians and the Israelis was the order of the day.



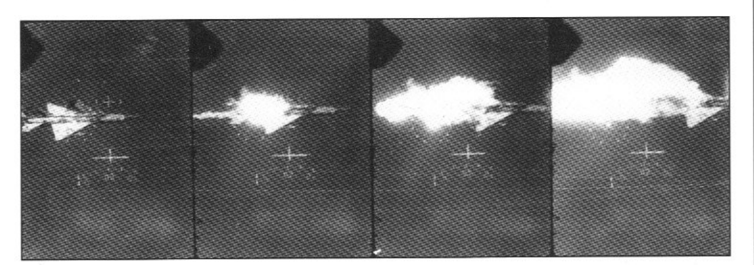
The formidable Egyptian Air Defence Force is evident in this photo of Israeli F-4s attacking Tsalchiya air base, each arrow represents a surface-to-air missile *(IAF)*

Israeli Mirage and Nesher fighters were credited on 18 October with fourteen kills on the Egyptian front including three Libyan Mirages. Gidon Livni was the top-scoring pilot of the day with 2.5 kills.

However, two Israeli F-4s and a single A-4 were lost on the same day during an attack on the air defence array in the northern sector of the Suez Canal. But the combined Israeli Air Force and Defence Force operation had its effect, and 19 October was the first day of the war during which the Israeli Air Force did not lose a single aircraft. By this time the Israeli offensive was threatening to topple the complete Egyptian deployment. On 20 October the USSR invited the US Secretary of State to Moscow in order to put diplomatic pressure on Israel to cease hostilities immediately, thus saving Egypt from defeat and preserving at least a portion of its initial success. The urgent diplomatic action prompted Israel to intensify its offensive on the Egyptian front in order to secure the complete encirclement of the Egyptian 3rd Army.



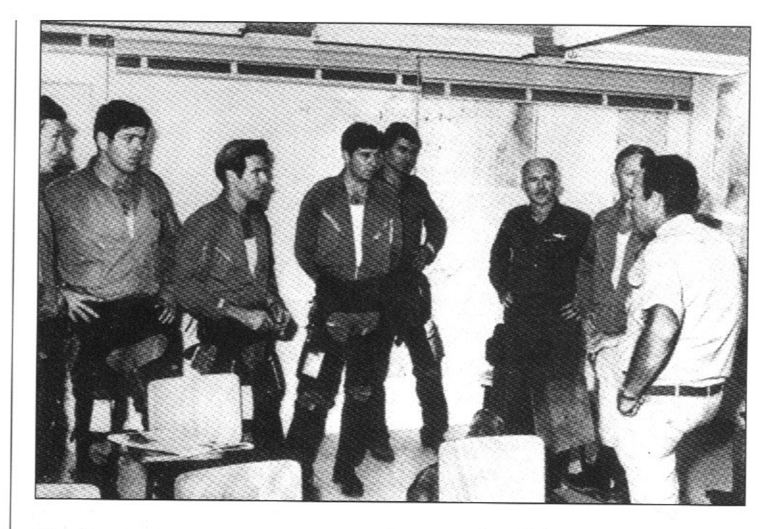
Egyptian soldiers examine an Israeli Bell 205 that had been shot down by a SAM (*Nicolle collection*)



Perhaps the most amazing Israeli Air Force gunsight camera sequence of an air-to-air kill was captured by No. 101 Sqn pilot Gidon Livni on 18 October 1973 *(IAF)*

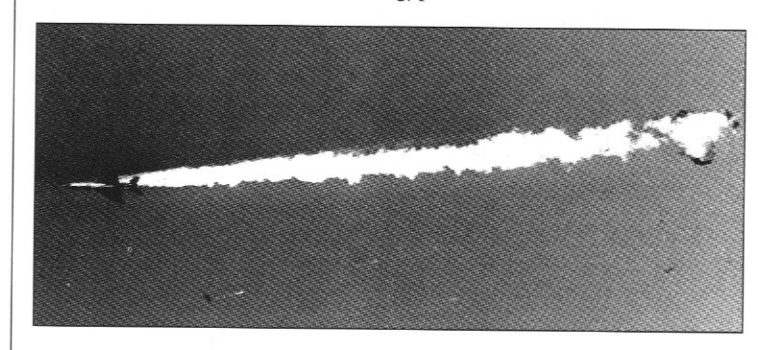


Gidon Livni was the last Israeli Air Force fighter pilot to become an ace while flying the delta wing fighters: the Mirage and the Nesher *(Livni collection)*


Five No. 113 Sqn Nesher pilots, left to right: Gideon Dror, Shlomo Levi, Amos Shachar, Moshe Hertz and Amit Eshchar face the Israeli Air Force commander Binyamin Peled (right) and the Hatzor air base commander Amos Lapidot (second from right) at the squadron's briefing room during the Yom Kippur War *(IAF)*

On the Syrian front a limited offensive was launched on 21 October to recapture the strategically important observation post on the summit of Mount Hermon that had been taken by Syrian commandos on 6 October. It was the largest Israeli Air Force heliborne operation of the war, although not the war's largest. The Egyptian Mi-8s deserve that honour for the dropping of Egyptian commandos into Sinai during the opening stages of the war. Israeli S-65 and Super Frelon helicopters landed more than 600 troops on the ridge north of the summit, while a ground force fought its way up to the summit from the south. In the air above, the Israeli Air Force supported the operation while Syria sent its MiG-21s to the area. Three Syrian MiG-21s were shot down, one by a Mirage pilot and two by F-4 crews, for the loss of a single F-4 plus an A-4 lost in a close air support mission. The Israel Defence Force offensive at Mount Hermon was successfully completed on 22 October.

UN Resolution 338 called for a ceasefire to start at midnight on 22 October, but the fighting did not cease until 24 October. Fighting was fierce on the last two days of the war. On 23 October Israeli F-4s attacked the Khan El-Ayash fuel installations in Syria and in an air combat versus Syrian MiG-21s Dani Halotz, the current Israeli Air Force commander, shot down two MiG-21s. On the Egyptian front an Israeli Nesher was saved that day when its pilot, Moshe Hertz, landed at Fayid air base, a site that had only been captured by the Israel Defence Force on 21 October. Fayid subsequently became the hub of Israeli Air Force operations on the west bank of the Suez Canal with a lot of air traffic: light planes, transports and helicopters. Other ex-Egyptian Air Force air bases captured by the Israel Defence Force west of the Suez Canal were Kabrit, Kasfreet and Shalufa, but these were not used by the Israeli Air Force.


An Egyptian MiG-21 shot down over the Israeli Defence Force bridgehead on 19 October 1973. The pilot ejected though his parachute is yet to deploy. He was taken PoW by an IDF tank crew immediately after touching the ground *(GPO)*

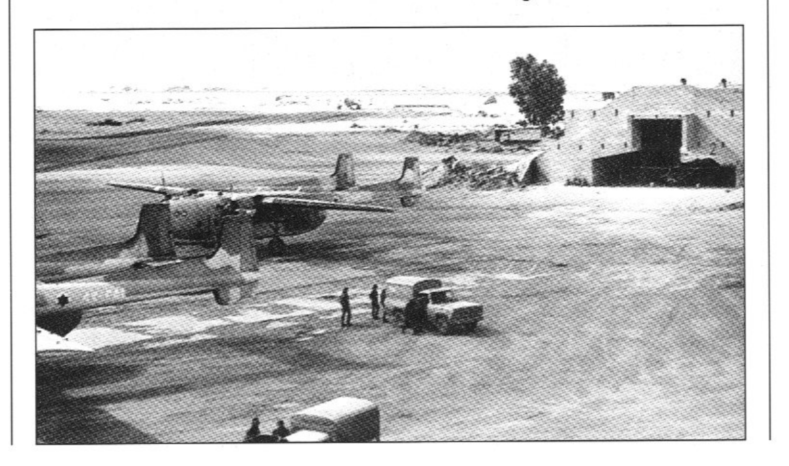

None of the Israeli Super Frelons was lost during the Yom Kippur War, although two of their S-65 counterparts were lost


Towards the end of the Yom Kippur war Israel received F-4Es from the USA to replace losses *(IAF)*

An Israeli S-65 helicopter on a casualty evacuation mission was lost on the morning of 24 October with all 24 on board including the casualties who had escaped a worse fate in the futile Israel Defence Force attempt to conquer Suez City which cost the lives of more than 80 Israeli soldiers. Later that day, at noon, the last air combat of the war took place over the Israeli bridgehead, and in many ways it resembled the Attrition War air combats when the Israeli Air Force sent special teams of expert MiG-killers to engage the Arab pilots. Three Israeli four-ship formations were to participate in the air combat although only ten Israeli delta-wing fighters actually took part in the action, which also involved some twenty Egyptian MiG-21s. Giora Epstein shot down four Egyptian MiG-21s to bring his personal score to 17 kills, the top scoring Israeli Air Force fighter pilot. Israel Baharav and Ilan Gonen shot down two MiG-21s each, Amit Eshchar, Avraham Salmon and Michael Zuk shot down a single MiG-21 each and Eliezer Ye'ari and Dan Sever shared a single MiG-21 kill.



Israeli F-4s attacked a number of strategically important targets in Syria like this fuel tank complex at Tartus *(IAF)*


Israeli Air Force Noratlas transports at Fayid air base *(IAF)*

AN UNEASY PEACE

Although the Israeli Air Force emerged victorious from the Yom Kippur War it was shocked to its foundations by its inability to win the air superiority battle on its own. Former Israeli Air Force commander (1958-66) Ezer Weizman coined the phrase that 'the missile bent the aircraft's wing' and the Israeli Air Force found itself occupied in search of a cure. The ultimate answer was superior technology. The Israeli Air Force purchased superior aerial platforms and developed new weapons and new tactics to counter the SAM threat in order to swing the pendulum of warfare back in its favour. Throughout the remaining years of the 1970s the Israeli Air Force was preoccupied with the development of a solution to the SAM threat, while operational activity continued.

Despite the ceasefire, hostilities continued for more than a month on the Egyptian front and were resumed in the spring of 1974 on the Syrian front. Down south the main friction point was the Egyptian attempt to resupply the surrounded 3rd Army and the Israelis shot down several Egyptian helicopters. On 9 November 1973 an Israeli RF-4E was shot down by an SA-2. The pilot Gidon Shefer survived ejection from an aircraft travelling at 48,000 feet at 1.7 Mach but his navigator Ofer Tsidon was killed. The last air combat on the Egyptian front took place on 6 December but did not involve Egyptian pilots. Two Israeli F F-4s shot down a single North Korean flown MiG-21, while a second was shot down in error by the Egyptian Air Defence Force.

The spring of 1974 melted the snow on Mount Hermon and this prompted the Syrians to launch an effort to recapture the summit. Fighting lasted for more than a month and the cost for both sides was dear but to no effect. An Israeli F-4 was shot down on 6 April 1974, most likely by a shoulder launched SA-7, and its crew became PoWs in Lebanon. Another F-4 was lost on 19 April. The pilot was killed and the navigator became a PoW in Syria. The same day an Israeli A-4 was also lost with the pilot killed, while two Syrian MiG-21s were shot down in an air combat by Mirage pilot Avraham Salmon. Ten days later, on 29 April, another two Syrian MiG-21s were shot down by Israeli Mirages, the last kills for the legendary French fighter in Israeli Air Force service. Yet one more aircraft was lost to the Israelis when a reconnaissance Mirage was shot down on 6 May, but the pilot Eitan Karmi survived ejection. It was his third ejection from a delta-wing fighter!

By the mid-1970s the Israeli Air Force used a relatively quiet period for the introduction of new weapons, the absorption of new tactics and reorganisation. Intelligence got the highest priority and Israeli Air Force Intelligence became a separate Group commanded by a Brigadier General. The arrival in 1976 of the first F-15s and in 1978 of E-2C airborne early warning aircraft in 1978 gave the Israelis a marked edge over the Arab air forces. Even more important was the introduction into service of many components that were eventually to compose an integrated system primarily aimed at the destruction of SAM arrays and the achievement of air superiority. Among those systems were unmanned air vehicles for real time intelligence, both air and surface launched anti-radiation missiles, decoys, electronic warfare systems and command and control systems.


A rare view of a Syrian Air Force MiG-21 under an HAS at an air base near El-Hama in 1974


A Syrian SAM battery attacked by the Israeli Air Force in the 1974 spring fighting *(IAF)*

While the Israeli Air Force was honing its ability to challenge Arab integrated air defence arrays, Israel was once again surprised when Egyptian President Anwar Sadat extended the hand of peace in 1977. His historic visit to Israel that year was followed by a peace treaty, signed in 1979, that stipulated an Israeli withdrawal from Sinai by April 1982. It was a major blow to the Israeli Air Force that it was about to lose three major air bases (Eitham, Etzion and Refidim), many other bases, critical early warning territories and vast training areas. But the fruits of peace quite rightly took priority.

OPERATIONS IN LEBANON

In parallel with the Egyptian-Israeli peace process, Syria adopted an aggressive stance aimed at taking over Egypt's leadership in the Arab-Israeli struggle. In 1976 Syria invaded Lebanon and gradually Lebanon became a Syrian puppet state. While the Jordanian and Syrian borders were quiet and Egypt was talking peace with Israel, the PLO only had the option of Lebanese soil from which to wage its armed struggle. Thus the focus of Israeli Air Force operational activity was turned on Lebanon, but with the significant Syrian presence it was only a matter of time before the air forces of Israel and Syria would clash again. Three months after Egypt and Israel had signed their peace treaty in Washington the inevitable happened. On 27 June 1979 six Israeli F-15s and two IAI Kfirs entered combat with Syrian MiG-21s over Lebanon. The technology gap was so wide that the Syrian MiG-21s had no real chance. Four MiG-21s were shot down by the F-15 pilots and a fifth by a Kfir pilot. Another four Syrian MiG-21s were shot down by Israeli F-15s on 24 September 1979, includ-

The Lance surface-to-surface missile (SSM) system was one of the new weapons that Israel purchased in the mid-1970s when it focused on efforts to create an integrated answer to the SAM threat *(IDF Spokesman)*





The IAI Kfir entered Israeli Air Force service in 1975 *(GPO)*

ing a double kill by Avner Naveh, while a single Syrian MiG-25 was shot down on 13 February 1981. By this time Israeli F-15s had been augmented by the F-16s that had begun to arrive in July 1980, and this combination of F-15s and F-16s was used to destroy the Iraqi nuclear reactor on 7 June 1981.

Air combats over Lebanon continued, but it was a 28 April 1981 Israeli Air Force action in support of the Christain militia in Lebanon that resulted in a major escalation. In two separate engagements that day Israeli F-16s shot down two Syrian Mi-8 helicopters deep in Lebanon. From the Syrian point of view this action was a violation of a red line. While the usual air combats between fighters had no significant impact on the Syrian presence in Lebanon, the shooting down of assault helicopters in direct support of a local Lebanese force directly endangered Syrian control. To protect their forces in Lebanon the Syrians inserted an integrated air defence array into the Lebanon (Beka'a) Valley. In Israel's view this was on its own a major escalation since it limited the Israeli freedom of flight over Lebanon.

More than a year of high tension followed before Israel finally invaded Lebanon on 6 June 1982. First promoted as a limited operation to clear a 25 mile zone deep into Lebanon of PLO artillery in order to ensure 'peace' for the Galilee, Israel once again found itself manoeuvred into a major escalation by its Christian allies in Lebanon. The underlying goals of the operation were to cut the Beirut-Damascus highway on the east, capture Beirut on the west, expel the PLO from Lebanon and hand over the Lebanese Presidency to Israel's Christian allies. To achieve this, Israel had to fight the Syrian forces in Lebanon.

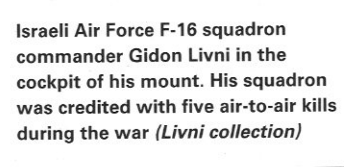
At first the Syrians were careful, trying to learn what were the main Israel Defence Force efforts and whether this was a limited Israeli action or a full scale war. The Israeli Air Force supported the Defence Force and Syria sent its fighters to the area, but the Syrian MiG-21s and MiG-23s were no match for Israeli F-15s on combat air patrols, the technology gap was too wide. Finally the advance of the Israeli ground forces triggered the Israeli government into a decision to attack the Syrian air defence array in the Beka'a Valley in order to secure air superiority over the area and efficient air support to the Israeli Defence Force. The integrated operation was launched at noon on 9 June 1982 with the Israeli Air Force utilising unmanned air vehicles to monitor the whereabouts of the SAM batteries and to access the damage in real time, decoys to trigger the Syrian radar into active operation, and air and ground launched anti-radiation missiles to knock out the radars. A good result would allow the attack aircraft to penetrate

The F-15 widened the technology gap between the Israeli Air Force and the Arab air forces *(GPO)*

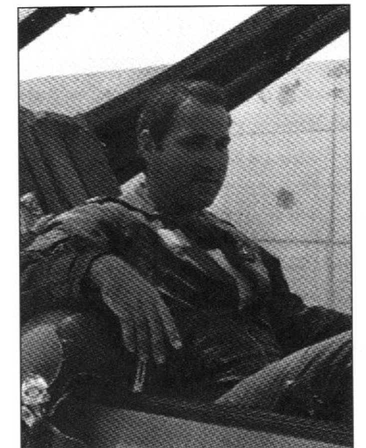


An IAI Kfir inaugurates the first runway at the new Ovda air base on 8 November 1981. Three new air bases (Nvatim, Ramon and Ovda) were constructed to compensate for the loss of the Sinai air bases following the peace treaty with Egypt *(GPO)*





Israeli Air Force F-16 squadron commander Gidon Livni in the cockpit of his mount. His squadron was credited with five air-to-air kills during the war *(Livni collection)*



the air defence array and destroy the hapless batteries. All of this action took place in an environment of tight command and control, electronic counter measures and electronic warfare.

Within hours the Israeli Air Force had destroyed the Syrian air defence array in Lebanon without a single loss. When the Syrians realised that their air defences were collapsing they launched their MiG-21s and MiG-23s but this action only magnified the Israeli victory when the waiting Israeli F-15s and F-16s shot down 29 Syrian fighters, again without a loss. The Israeli Air Force had implemented the lessons that it had learned in the Attrition War and in the Yom Kippur War. The stigma had been removed. This time it was the turn of the missile to be bent.

COLOUR PLATES

1
Avia S-199 s/n D-120
One of the more 'durable' examples among the 25 Mezeks (Mule in Czech) that were purchased by Israel. The first recorded operational flight of D-120 was on 29 July 1948 when Rudy Augarten patrolled alone the Faluja-Maj'dal area after his leader Red Finkle had to return to base following engine trouble. On 14 September D-120 was damaged in a landing accident when Bill Pomerantz returned from a one-hour patrol mission. The aircraft was repaired and test flown by Leon Frankl on 24 September, while its last recorded operational mission came on 22 December when Syd Cohen escorted Harvards to dive bomb Khan Yunes.

2
Supermarine Spitfire LF.9 s/n 48
Spitfire 2048 was one of fifty Spitfires purchased by Israel from Czechoslovakia in 1948. It arrived in crates after the end of the Independence War and was first flown after reassembly in December 1950. It then served with 105 Sqn in the OTU role between 1951 and 1954. In 1955 the aircraft was cannibalised for spare parts by Bedek as part of the effort to refurbish ten Spitfires for Burma.

3
North American Mustang P-51D s/n 01
The first Israeli P-51 was smuggled from the US to Israel, having been dismantled into crates that were labelled 'agricultural equipment'. The fighter was reassembled at an improvised landing strip near kibbutz Ma'abarot, an activity that certainly influenced several of the kibbutz boys to join the IAF when they grew up. Among them were Ohad Shadmi (killed as a Lt Col in an F-4 accident in 1970) and Giora Furman (retired as a Brig Gen in 1983). As for the Mustang, it served with 101 Sqn during the Independence War and with 116 Sqn during the Sinai Campaign before being finally withdrawn from use in late 1960.

4
Dassault Ouragen s/n 44
Having served with the French Air Force at Dijon, this Dassault Ouragen was delivered to Israel in late 1955, after which it served with 113 Sqn during the Sinai Campaign.

5
Dassault Mystère IVA s/n 25
This aircraft, serial number 25, was operated by 109 Sqn during 1960. Interestingly it was among a batch of Mystères that were allocated a civil Israeli registration, 4X-FQA, on 15 October 1956. Mystère 25 had a long service career and was still flying at the end of the Attrition War in 1970. The red flash along the fuselage closely resembled the flash painted on the Armée de l'Air's Mystères that were operated out of Ramat David air base during the Sinai Campaign. The bare metal finish and red flash gave way to the standard IAF pre-1967 camouflage of blue and brown upper surfaces and light sky grey on the underside.

6
Dassault Super Mystère B.2 s/n 31
This aircraft served throughout its career with 105 Sqn, but did not survive long enough to be upgraded to Sa'ar (Storm) standard. Super Mystères were delivered in a bare metal finish with a red flash along both sides of the fuselage. During the 1950s and '60s, Israeli Air Force policy was to retain its top fighters in bare metal, possibly to save weight and reduce drag. As more advanced fighters entered service, earlier fighters were painted in the IAF camouflage scheme. Thus when Super Mystères were delivered in 1958-59 old Mystères were camouflaged, and likewise old Super Mystères were camouflaged when the Mirage entered service in 1962.

7
Dassault Mirage IIICJ s/n 12
Lt Col David Ivry, a 101 Sqn Hatzach pilot, flew his first Six Day War mission in Mirage IIICJ 12 on 5 June 1967 when his wingman Lt Ilan Gonen shot down an Egyptian Air Force Il-14 over Sinai. The red and white striped rudder was reintroduced by 101 Sqn a short while after the Mirage IIICJ entered service, thus renewing the tradition that was introduced in 1948 when Avia S-199 fighters were painted with a red and white striped rudder. The tradition was discontinued when the squadron re-equipped with the Mystère in 1956.

8
Sikorsky S-58 s/n 11
One of the first three S-58B helicopters that arrived in Israel in 1958. They were followed by a fourth in 1959 and a further three in 1960, while 22 H-34G-IIIs and 2 SH-34Gs arrived from West Germany in 1962-63. The initial batch purchased in the USA was the civil model because the US Administration was not yet willing to sell Israel any weapons.The larger batch received from West Germany were all of the military version, although all these helicopters were known in Israeli service simply as 'Sikorsky 58s'.

9
Sa'ar (Storm) upgraded Dassault Super Mystère B.2 s/n 33
Between 1969 and 1972 the Israeli Air Force converted its remaining Dassault Super Mystère B.2 fighters to Sa'ar (Storm) standard, optimising the platform for the air-to-ground role. The heart of the conversion was the replacement of the French Atar 101G afterburning turbojet with the more economical US manufactured Pratt and Whitney J52 engine as used in the A-4H Skyhawk that was by then the primary IAF attack aircraft. Additionally the empennage was redesigned to compensate for Centre of Gravity shift and for the deletion of the convergent/divergent nozzle of the afterburning French powerplant. French systems were replaced with Israeli and US systems and an additional hardpoint was added below each wingroot. The new additional hardpoint was wired to carry the Rafael Shafrir 2 Air-to-Air Missile for self-defence.

10
IAI Kfir s/n 727
The IAI Kfir entered Israeli Air Force service in mid-1975. Quite soon the initial version of this fighter became known as Kfir Balata (Brick) because of its lack of agility and manoeuvreability compared with the previous IAF delta fighters, the Mirage and the Nesher. Two years later the improved canard equipped Kfir C2 entered IAF service and the early Kfirs were passed from squadron to squadron pending delivery of the more capable version. In two separate contracts Israel leased a total of 25 Kfirs to the US Navy and to the US Marine Corps for use in the aggressor role under the US designation F-21A Kfir. The US Marine Corps VFMT-401 squadron operated Kfir 727 as '07' between 1987 and 1989.

11
McDonnell Douglas A-4E Ahit (Vulture) s/n 215
To accelerate deliveries of the McDonnell Douglas A-4 Skyhawk Israel purchased ex-US Navy A-4Es in addition to the new-build A-4H model. Thus between 1967 and 1971 the Israeli Air Force converted one squadron from the Mystère to the A-4H, formed two new A-4H squadrons, converted a Sud Aviation Vautour squadron to the A-4E and another Mystère squadron to the A-4E. When A-4N deliveries commenced in 1972 the force was expected to go through a further expansion, but the October 1973 Yom Kippur War interfered. Both the A-4E and A-4H models were brought up to A-4N standard by the insertion of the improved navigation and attack system in the 'hump' behind the cockpit. A-4E 215 has already received the updated avionics package but not the extended nozzle that had been refitted to the IAF Skyhawks in a crash programme during the Yom Kippur War. This was a lesson from Sa'ar operations when it was realised that the extended nozzle of the Sa'ar resulted in the infra-red homing missiles (the greatest threat was the shoulder launched SA-7 Surface-to-Air Missile) exploding further aft than in the case of the A-4. When the warhead of the missile exploded even several feet further away the damage caused to the aircraft's control surfaces by the debris of the explosion was significantly reduced.

12
McDonnell Douglas F-4E Kurnass (Sledgehammer) s/n 127
The McDonnell Douglas F-4E Phantom, known in Israeli Air Force service as the Kurnass (Sledgehammer), had given the phrase 'a multi-role combat aircraft' a new dimension when it entered IAF service in 1969. At first two new squadrons were formed to operate the first batch, while in late 1970 The Bat Squadron became the third IAF unit to operate the Kurnass. F-4E 127 was originally USAF 69-7226, one of the second batch of Phantoms purchased by Israel, and it is currently at the IAF Museum, Hatzerim air base.

13
McDonnell Douglas F-15A Baz (Buzzard) s/n 654
The first three McDonnell Douglas F-15A Baz (Buzzards) to arrive in Israel in December 1976 were in fact refurbished Research & Development (R&D) airframes. A fourth refurbished R&D example followed soon afterwards while more than a year later deliveries of nineteen F-15A single-seaters and two F-15B two-seaters commenced. F-15A 654 is most likely USAF 76-1505, the first of the nineteen serial production new-build Israeli examples, and it is not a known MiG-killer.

14
General Dynamics F-16A Netz (Hawk) s/n 254
Considered by many as the true successor to the legendary French Dassault Mirage in Israeli Air Force service, the first four General Dynamics F-16A/B Netz (Hawk) fighters arrived in Israel in July 1980, and by the time of the June 1982 Lebanon War the IAF had three fully operational F-16A/B squadrons. The first IAF F-16A/B squadron was the First Jet Squadron and for a short while the serial number atop the vertical stabiliser of each of the squadron's aircraft was replaced by an individual aircraft name, though the serial number on the side of the air intake was retained. Carrying two kill markings, Netz 254 was named Noga (Venus).

15
Augusta Bell 205 s/n 948
Just as in Vietnam where the US Army UH-1 helicopter was one of the icons of that war, the Augusta Bell AB 205A and Bell 205A were icons of the Israel Defence Force war against the PLO along the length of the hot Jordan valley. The first AB 205As (tail rotor to port) arrived in Israel in December 1967 to replace the old Sikorsky S-58 utility helicopters, and these were followed by Bell 205A examples (tail rotor to starboard) as exemplified by s/n 948.

16
Bell AH-1S Zefa (Viper) s/n 118
One of the many lessons of the Yom Kippur War was the purchase of attack helicopters by the Israeli Air Force to augment close air support and battlefield air interdiction operations by fixed-wing aircraft. Six Bell AH-1G Zefa (Viper) attack helicopters, including s/n 118, arrived in Israel in 1975 to be operated by an evaluation unit. The AH-1G lacked a sight for the TOW anti-tank missile and in 1977 the six helicopters were shipped back to the US for upgrade to the TOW capable AH-1Q model. In 1977 the evaluation unit became a squadron and in 1978 the AH-1Q attack helicopter arrived in Israel.

COLOUR SECTION

1
Auster VQ-PAS (ex-G-AHHV) was purchased in 1946 and ferried to Palestine by Emanuel Zur in September 1946 *(Henenson collection)*

2
Tiger Moth VQ-PAU was one of two ex-Royal Canadian Air Force aircraft that were purchased in 1947 by the Aviron Co. Both survived long enough to enter Israeli Air Force service. *(Senior collection)*

3
The wreckage of the Royal Egyptian Air Force Spitfire shot down by No 101 Sqn commander Modi Alon on 18 July 1948 *(GPO)*

4
The Mirage was originally an interceptor, illustrated here with a Matra R.530 air-to-air missile and two supersonic fuel tanks, but was operated by the Israeli Air Force as a true multi-role combat aircraft *(GPO)*

5
The Israeli Air Force was so desperate that even this ex-Iraqi Air Force MiG-21 was placed on quick reaction alert on the morning of 5 June 1967. Luckily it was never scrambled *(Ronen collection)*

6
A trio of Israeli Air Force Vautour fighter-bombers in flight shortly before the Six Day War *(IAFM collection)*

7
Israeli Air Force Mirage 778 was credited with four air-to-air kills during the Six Day War *(Ronen collection)*

8
A mixed formation of pre-Six Day War camouflage and post-Six Day War camouflage Vautours of Israeli Air Force No. 110 Sqn *(IAF)*

9
This Israeli Air Force Mirage 11 was damaged in a take-off accident in October 1969. The pilot was Israel Baharav *(Nir collection)*

10
Israel Baharav's first kill on 24 October 1973 *(Baharav collection)*

11
Israel Baharav's second kill on 24 October 1973 *(Baharav collection)*

12
The Israeli Air Force Super Frelons played a key role in the invasion of Shadowan Island in January 1970 *(IDF Spokesman)*

13
Israeli ground crew examine F-16A 107 one of the first four of its kind to arrive in Israel on 2 July 1980. Within two years this aircraft was to create history. It was one of the eight Israeli Air Force F-16s that destroyed the Iraqi nuclear reactor in 1981 and it shot down 6.5 Syrian aircraft. *(IDF Spokesman)*

Map 1
The partition of Palestine, the UN plan, November 1947

Map 2
Israel's boundaries in 1949 after the Independence War

Map 3
Israel's 1956 boundaries and occupied zone

Map 4
Israel's 1967 boundaries after the Six Day War

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GLOSSARY OF TERMS

AA Anti-Aircraft
AAA Anti-Aircraft Artillery
AAM Air-to-Air Missile
ADF Air Defence Force
AEW Airborne Early Warning
AFV Armoured Fighting Vehicle
ARM Anti-Radiation Missile
ATC Air Transport Command
BAI Battlefield Air Interdiction
CAP Combat Air Patrol
CAS Close Air Support
CASEVAC CASualties EVACuation
CoS Chief of Staff
CSAR Combat Search and Rescue
EAF Egyptian Air Force
ECM Electronic Counter Measures
EW Electronic Warfare
FMB Fast Missile Boat
HAS Hardened Aircraft Shelter
IAF Israeli Air Force
IDF Israel Defence Force
IrAF Iraqi Air Force
KiA Killed in Action
MBT Main Battle Tank
MiA Missing in Action
OTU Operational Training Unit
PLO Palestine Liberation Organisation
PoW Prisoner of War
PR Photo Reconnaissance
QRA Quick Reaction Alert
RAF Royal Air Force
REAF Royal Egyptian Air Force
SA Sherut Avir (Air Service)
R/T Radio/Telephone
SAF Syrian Air Force
SAM Surface-to-Air Missile
SSM Surface-to-Surface Missile
UAV Unmanned Air Vehicle
UN United Nations
USAF United States Air Force
VR Visual Reconnaissance
WAAF Women's Auxiliary Air Force

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References to illustrations are shown in **bold**.

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ARAB-ISRAELI AIR WARS 1947-82



The proposed partition of Palestine in 1947 pleased neither side. When hostilities broke out the Israeli Air Force, cobbled together from hastily converted light planes, suffered setbacks. However, the IAF soon built up its own fighter force and, against all odds, Israel won its War of Independence against hostile Arab neighbours. By the time of the Six Day War in 1967 the supersonic age brought Mirages and Super Mystères into battle with the latest MiGs. Israel's strategy of pre-emptive air strikes played a part in a surprise victory, bringing them air supremacy and territorial buffer zones, but not peace. Egypt masterminded a war of attrition against the Israeli Air Force using the latest missile technology. In the ensuing arms race the arrival of F-4s, F-15s and the latest reconnaissance aircraft helped redress the balance. Israel held off the Arab attack of October 1973 and won another victory in the Yom Kippur War. In spite of peace treaties, hostilities did not cease and in 1982 the conflict moved to the Lebanon. This is the story of the aircraft and the aces on both sides of the conflicts during those troubled years.

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